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MATHEMATICS · EAPCET (EAMCET)

Straight Lines

Previous Year Questions with answers

1,043 questions · **149** papers · **2010–2026** · newest paper first

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What is in this PDF: every Straight Lines question we hold from past AP and TS EAPCET (called EAMCET until 2020 in Andhra Pradesh and 2023 in Telangana) papers, with its options and answer. Where an answer comes from a source other than the official final key, it says so next to the answer.

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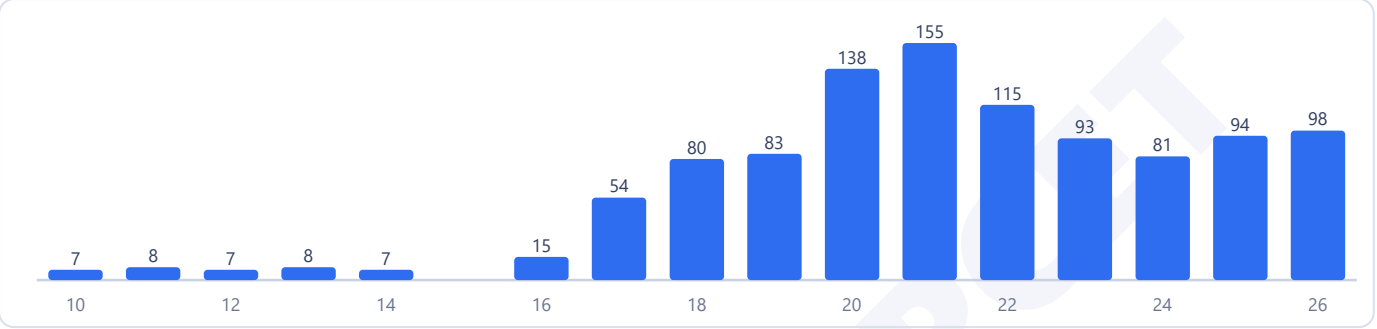
Chapter at a glance

7.8%	1,043	77 of 77	1,043 / 0
of Mathematics questions, 2022–2026	questions, 2010–2026	papers asked it, 2022–2026	MCQ / numerical, 2010–2026

Trend. Steady: 5.9 questions per paper in 2024–2026 against 6.7 in 2022–2023.

Questions per year



Counts are the questions we hold: 1,043 in 149 papers. 24 questions in this chapter came back in more than one paper.

Most-asked topics in this chapter (2010–2026)

Equations of Lines	379
Points & Basics	352
Pair of Straight Lines	312

How often it comes up

Straight Lines stands as an absolute juggernaut of coordinate geometry, commanding the second largest weight across the entire EAPCET mathematics syllabus. Spanning the comprehensive testing archive from 2010 through 2026, Straight Lines generated 1043 questions across 149 evaluated exam papers, featuring in all 149 papers to average an immense 7.0 questions per paper and an 8.8 percent subject share. In contemporary testing from 2022 to 2026, the chapter sustained this total representation across all 77 sittings, delivering 481 questions (averaging 6.2 questions per paper and a 7.8 percent subject share). This places Straight Lines at rank 2 of 29 mathematics chapters.

Every single exam sitting presents candidates with six to seven coordinate geometry problems from this chapter. Across the three most recent testing years from 2024 to 2026, question writers set 273 questions across 46 sittings (present in all 46 papers, averaging 5.9 questions per test and a 7.4 percent share). During the older examination timeframe from 2010 to 2021, the chapter contributed 562 questions across 72 sittings (appearing in all 72 papers, 7.8 per test, 9.8 percent share). Evaluating historical movement, comparing early testing with the last three years shows the share is down, while comparing recent testing with the last three years shows the share is about the same. In regional tallies for 2022 through 2026, Andhra Pradesh papers contributed 285 questions across 48 sessions (all 48 papers, 5.9 per test, 7.4 percent share), while Telangana sessions delivered 196 questions across 29 papers (all 29 papers, 6.8 per test, 8.4 percent share).

Most-asked topics

Questions distribute across three expansive coordinate geometry divisions:

- **Equations of Lines**: Delivering 379 total questions, with 168 appearing in recent testing (tested through 2026). Key concepts include slope-intercept, point-slope, two-point, intercept, and normal forms; perpendicular distance; distance between parallel lines; concurrent lines; and angle bisector equations.

- **Points & Basics**: Supplying 352 total questions, with 186 emerging in modern examinations (tested through 2026). Coverage encompasses distance formula, section ratios, area of polygons, locus problems, translation of axes to eliminate linear terms, and rotation of axes to remove cross-product terms.
- **Pair of Straight Lines**: Accounting for 312 total questions, with 127 set in recent sessions (tested through 2026). Focus areas involve homogeneous quadratic equations, angle between line pairs, angle bisector formulas, general second-degree equations, intersection points, and curve homogenization.

What the questions look like

Examiners test transformations of coordinate axes, loci of geometric points, and second-degree line pairs.

A classic problem involves shifting the origin to an unknown point (h, k) and rotating axes by an angle theta to transform a quadratic equation into a form lacking linear terms or cross-product terms. Another frequent question asks for the locus of a point dividing the segment intercepted by coordinate axes in a given ratio, or finding the locus of the centroid of a triangle whose vertices move along specified linear constraints. In pair of straight lines, questions regularly ask for the angle between lines represented by a quadratic, or require students to homogenize a curve with a secant line to determine whether lines joining the origin to intersection points are mutually perpendicular.

How to practise it

Master coordinate transformations systematically. To eliminate linear terms in a general second-degree equation, translate the origin to the center (h, k) obtained from partial derivatives with respect to x and y. To eliminate the cross-product x y term, rotate the axes by an angle theta satisfying tan two theta equals two h divided by a minus b.

For pair of lines a x squared plus two h x y plus b y squared equals zero, the lines are perpendicular if and only if a plus b equals zero, and coincident if and only if h squared equals a b. The equation of the angle bisectors is x squared minus y squared divided by a minus b equals x y divided by h. Master homogenization: to find the equation of lines joining the origin to the intersection points of a second-degree curve with line l x plus m y plus n equals zero, write the line as l x plus m y divided by negative n equals one, and multiply linear terms by this ratio and constant terms by its square.

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Q1 AP EAPCET 2026 · 18 May · Shift 1 MCQ

Consider the lines $L_1 : 2x + 3y + 1 = 0$ and $L_2 : 3x - 2y + 1 = 0$. The locus of a variable point that is equidistant from the two lines $L_1 = 0$ and $L_2 = 0$ is

(A) $5x^2 - 24xy - 5y^2 + 2x - 10y = 0$
(B) $x - 5y = 0$
(C) $5x + y = 0$
(D) $5x^2 - 24xy - 5y^2 = 0$

Answer: (A) $5x^2 - 24xy - 5y^2 + 2x - 10y = 0$ · The council's preliminary key

Q2 AP EAPCET 2026 · 18 May · Shift 1 MCQ

If the coordinate axes are rotated about the origin through an angle $\frac{\pi}{8}$ in the positive direction to remove the xy term from the equation $ax^2 + bxy + y^2 = 0$, then

(A) $a^2 + b^2 = 1$
(B) $a = b + 1$
(C) $b = a + 1$
(D) $2a = b + 5$

Answer: (B) $a = b + 1$ · The council's preliminary key

Q3 AP EAPCET 2026 · 18 May · Shift 1 MCQ

The lines $L_1 \equiv 2x + y + 1 = 0$ and $L_2 \equiv x - 2y + 4 = 0$ intersect at A. Let P be a point at a distance of 5 units from $L_1 = 0$ and α units from $L_2 = 0$. If M, N are the feet of the perpendiculars from P on to the lines $L_1 = 0$ and $L_2 = 0$ respectively and the area of the quadrilateral AMPN is 25 sq. units, then point P lies on the line

(A) $x + 3y - 3 = 0$
(B) $3x - y + 12 = 0$
(C) $x + 3y = 0$
(D) $3x - y = 0$

Answer: (A) $x + 3y - 3 = 0$ · The council's preliminary key

Q4 AP EAPCET 2026 · 18 May · Shift 1 MCQ

If P(α, $\alpha + 1$) is the foot of the perpendicular drawn from the origin to the line L and the x – intercept of L is $\left(-\frac{5}{2}\right)$, then the sum of the squares of the distances from the origin to all such possible points P, is

(A) $\frac{45}{8}$
(B) $\frac{15}{2}$
(C) $\frac{12}{5}$
(D) $\frac{10}{7}$

Answer: (A) $\frac{45}{8}$ · The council's preliminary key

Q5 AP EAPCET 2026 · 18 May · Shift 1 MCQ

If the slope of one of the lines is twice the slope of the other in the pair of straight lines $6x^2 + 2hxy + y^2 = 0$ then $|h| =$

(A) $\frac{-3\sqrt{3}}{2}$
(B) $\frac{3\sqrt{2}}{3}$
(C) $\frac{3\sqrt{3}}{2}$
(D) $\frac{3\sqrt{5}}{2}$

Answer: (C) $\frac{3\sqrt{3}}{2}$ · The council's preliminary key

Q6 AP EAPCET 2026 · 18 May · Shift 1 MCQ

If the equation $\lambda x^2 - 5xy + 6y^2 + x - 3y = 0$ represents a pair of straight lines, then the point of intersection of these straight lines is

(A) $(1, 3)$
(B) $(1, -3)$
(C) $(3, -1)$
(D) $(-3, -1)$

Answer: (D) $(-3, -1)$ · The council's preliminary key

Q7 AP EAPCET 2026 · 18 May · Shift 2 MCQ

A vector $\overline{a}$ has components $2p$ and 1 with respect to a rectangular Cartesian system. This system is rotated through a certain angle θ about the origin in the positive direction. If with respect to the new system, $\overline{a}$ has components $p + 1$ and 1, then

(A) $p = \pm 1$
(B) $p = -1$, $p = \frac{1}{3}$
(C) $p = 1$, $p = -\frac{1}{3}$
(D) $p = \frac{1}{2}$, $p = \frac{3}{2}$

Answer: (C) $p = 1$, $p = -\frac{1}{3}$ · The council's preliminary key

Q8 AP EAPCET 2026 · 18 May · Shift 2 MCQ

The locus of the centre of a circle of radius 2 which rolls on the outside of the circle $x^2 + y^2 + 3x - 6y - 9 = 0$ along its circumference is

(A) $x^2+y^2+3x-6y+5=0$
(B) $x^2+y^2+3x-6y-31=0$
(C) $x^2+y^2+3x-6y+\frac{29}{4}=0$
(D) $x^2+y^2-3x+6y+31=0$

Answer: (B) $x^2+y^2+3x-6y-31=0$ · The council's preliminary key

Q9 AP EAPCET 2026 · 18 May · Shift 2 MCQ

Let A be the resulting point after the point $(4,1)$ undergoes the following transformations successively:

i. reflection in the line $y=x$

ii. translation through a distance of 2 units along the positive direction of X-axis.

If the axes are rotated through an angle of $\frac{\pi}{4}$ about origin in the positive direction, then the coordinates of the point A are

(A) $\left(\frac{7}{\sqrt{2}},\frac{1}{\sqrt{2}}\right)$
(B) $(-\sqrt{2},7\sqrt{2})$
(C) $\left(-\frac{1}{\sqrt{2}},\frac{7}{\sqrt{2}}\right)$
(D) $(\sqrt{2},7\sqrt{2})$

Answer: (A) $\left(\frac{7}{\sqrt{2}},\frac{1}{\sqrt{2}}\right)$ · The council's preliminary key

Q10 AP EAPCET 2026 · 18 May · Shift 2 MCQ

The straight line which is parallel to X-axis and passing through the intersection of the lines $ax+2by+3b=0$ and $bx-2ay-3a=0$, $(a,b)\neq(0,0)$ is

(A) above the X-axis at a distance of $\frac{3}{2}$ units from it
(B) above the X-axis at a distance of $\frac{2}{3}$ units from it
(C) below the X-axis at a distance of $\frac{3}{2}$ units from it
(D) below the X-axis at a distance of $\frac{2}{3}$ units from it

Answer: (C) below the X-axis at a distance of $\frac{3}{2}$ units from it · The council's preliminary key

Q11 AP EAPCET 2026 · 18 May · Shift 2 MCQ

In ΔABC , coordinates of A are $(1\ ,2)$. If the equations of the medians through B and C are $x+y=5$ and $x=4$ respectively, then the area of ΔABC (in sq. units) is

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(A) 12
(B) 9
(C) 6
(D) 4

Answer: (B) 9 · The council's preliminary key

Q12 AP EAPCET 2026 · 18 May · Shift 2 MCQ

If the slope of one of the lines $2x^2 - 17xy + by^2 = 0$ is 16 times the slope of another line, then the angle between this pair of lines is

(A) $\cos^{-1}\left(\frac{2}{3}\right)$
(B) $\tan^{-1}\left(\frac{4}{3}\right)$
(C) $\tan^{-1}\left(\frac{3}{2}\right)$
(D) $\cos^{-1}\left(\frac{3}{5}\right)$

Answer: (C) $\tan^{-1}\left(\frac{3}{2}\right)$ · The council's preliminary key

Q13 AP EAPCET 2026 · 18 May · Shift 2 MCQ

The square of the distance from the origin to the point of intersection of the pair of lines $ax^2 - xy - 3y^2 - 5x + 20y - 25 = 0$ is

(A) 25
(B) 20
(C) 13
(D) 17

Answer: (C) 13 · The council's preliminary key

Q14 AP EAPCET 2026 · 15 May · Shift 1 MCQ

A variable circle passes through the fixed point $A(p, q)$ and touches the X- axis. The locus of the other end of the diameter through A is

(A) $(y - p)^2 = 4qx$
(B) $(x - q)^2 = 4py$
(C) $(x - p)^2 = 4qy$
(D) $(y - q)^2 = 4px$

Answer: (C) $(x - p)^2 = 4qy$ · The council's preliminary key

Q15 AP EAPCET 2026 · 15 May · Shift 1 MCQ

The origin is shifted to the point $(2, 3)$ by translation of axes and then the axes are rotated about the new origin through an angle θ in the positive direction. If the equation $3x^2 + 2xy + 3y^2 - 18x - 22y + 50 = 0$ is now transformed to $4x^2 + 2y^2 - 1 = 0$, then the angle $\theta =$

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(A) $\frac{\pi}{4}$
(B) $\frac{\pi}{6}$
(C) $\frac{\pi}{3}$
(D) $\frac{\pi}{2}$

Answer: (A) $\frac{\pi}{4}$ · The council's preliminary key

Q16 AP EAPCET 2026 · 15 May · Shift 1 MCQ

If the image of the point $P(2,3)$ in a line L is $Q(4,5)$, then the image of the point $R(0,0)$ in the same line is

(A) $(4,5)$
(B) $(3,4)$
(C) $(2,2)$
(D) $(7,7)$

Answer: (D) $(7,7)$ · The council's preliminary key

Q17 AP EAPCET 2026 · 15 May · Shift 1 MCQ

The points (h,k), $(1,2)$ and $(-3,4)$ lie on the line L_1. If a line L_2 passing through the points (h,k) and $(4,3)$ is perpendicular to the line L_1, then $\frac{k}{h} =$

(A) $\frac{1}{4}$
(B) $\frac{1}{3}$
(C) $-\frac{1}{7}$
(D) $-\frac{1}{5}$

Answer: (B) $\frac{1}{3}$ · The council's preliminary key

Q18 AP EAPCET 2026 · 15 May · Shift 1 MCQ

If the sum of the slopes of the lines given by $x^2 - 2cxy - 7y^2 = 0$ is four times their product, then the value of 'c' is

(A) 2
(B) -2
(C) 1
(D) -1

Answer: (A) 2 · The council's preliminary key

Q19 AP EAPCET 2026 · 15 May · Shift 1 MCQ

If one of the lines $my^2 + (1-m^2)xy - mx^2 = 0$ is a bisector of the angle between the lines $xy = 0$, then $m =$

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(A) -2
(B) -1
(C) $\frac{1}{2}$
(D) $-\frac{1}{2}$

Answer: (B) -1 · The council's preliminary key

Q20 AP EAPCET 2026 · 15 May · Shift 2 MCQ

The locus of the point which forms a right angled triangle with the fixed points $(2,3)$ and $(5,1)$ represents

(A) a circle or a pair of parallel lines
(B) a pair of parallel lines which are parallel to the line passing through the given points
(C) a circle having the line joining the given points as a chord
(D) the perpendicular bisector of the line joining the given points

Answer: (A) a circle or a pair of parallel lines · The council's preliminary key

Q21 AP EAPCET 2026 · 15 May · Shift 2 MCQ

When the coordinate axes are rotated through an angle 30° in the positive direction about the origin, the transformed equation of $x^2+\frac{\sqrt{3}}{2}xy+\frac{1}{2}y^2=\frac{1}{4}$ is

(A) $x^2+\frac{1}{\sqrt{3}}xy+\frac{1}{5}y^2=\frac{1}{5}$
(B) $x^2+\frac{1}{5}y^2=\frac{1}{5}$
(C) $x^2-\frac{1}{5}xy+y^2=1$
(D) $x^2+y^2=5$

Answer: (B) $x^2+\frac{1}{5}y^2=\frac{1}{5}$ · The council's preliminary key

Q22 AP EAPCET 2026 · 15 May · Shift 2 MCQ

If (α,β) is the image of the centroid of the triangle formed by the points $(1,3)$, $(3,1)$ and $(2,4)$ with respect to the line $2x+3y-2=0$, then $\alpha+\beta=$

(A) $-\frac{118}{39}$
(B) $\frac{15}{43}$
(C) $\frac{16}{51}$
(D) $\frac{32}{39}$

Answer: (A) $-\frac{118}{39}$ · The council's preliminary key

Q23 AP EAPCET 2026 · 15 May · Shift 2 MCQ

If the line L passing through origin and making an angle of 60° with the line $2x+3y-4=0$ intersects the line $x=3+2\sqrt{3}$ at $(3+2\sqrt{3},3\sqrt{3}+k)$, then $k=$

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(A) 2
(B) -2
(C) 1
(D) -1

Answer: (B) -2 · The council's preliminary key

Q24 AP EAPCET 2026 · 15 May · Shift 2 MCQ

Area of triangle formed by the lines $2x^2 + 5xy + 3y^2 = 0$ and $3x + 4y - 1 = 0$ is

(A) $1/2$
(B) $5/2$
(C) 12
(D) 16

Answer: (A) $1/2$ · The council's preliminary key

Q25 AP EAPCET 2026 · 15 May · Shift 2 MCQ

If the pair of the lines parallel to the pair of the lines $L_2 \equiv x^2 + 2xy + by^2 - 4x + 44y - 12 = 0$ and passing through $(1, 1)$ is $L_1 = 0$, the equation of a diagonal of the quadrilateral formed by $L_1 = 0$ and $L_2 = 0$ is

(A) $6y - 5 = 0$
(B) $3x + 4y - 1 = 0$
(C) $6x + 5 = 0$
(D) $x - y + 7 = 0$

Answer: (A) $6y - 5 = 0$ · The council's preliminary key

Q26 AP EAPCET 2026 · 14 May · Shift 1 MCQ

O is the origin. P is a point moving on the straight line $lx + my + n = 0$ $(n \neq 0)$. If Q is a point on the segment $\overline{OP}$, such that $OP \cdot OQ = K^2$ where $K \neq 0$, Then the locus of Q is

(A) $n(x^2 + y^2) = -K^2(lx + my)$
(B) $K^2(x^2 + y^2) = n(lx + my)$
(C) $n(x^2 - y^2) = K^2(lx - my)$
(D) $n^2(x^2 + y^2) = K^2(lx - my)$

Answer: (A) $n(x^2 + y^2) = -K^2(lx + my)$ · The council's preliminary key

Q27 AP EAPCET 2026 · 14 May · Shift 1 MCQ

If the axes are rotated about the origin in positive direction through an angle of 30°, then the transformed equation of $x^2 + 2\sqrt{3}xy - y^2 = 2a^2$ is

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(A) $x^2 + y^2 = a^2$
(B) $x^2 + y^2 = 2a^2$
(C) $x^2 - y^2 = a^2$
(D) $x^2 - y^2 = 2a^2$

Answer: (C) $x^2 - y^2 = a^2$ · The council's preliminary key

Q28 AP EAPCET 2026 · 14 May · Shift 1 MCQ

If a non-horizontal line L is passing through the point $(4, -2)$ and the distance of L from the origin is 2 units, then the equation of the line L is

(A) $4x + 3y - 10 = 0$
(B) $x + y - 2\sqrt{2} = 0$
(C) $3x + 4y - 4 = 0$
(D) $2x + 3y - 2 = 0$

Answer: (A) $4x + 3y - 10 = 0$ · The council's preliminary key

Q29 AP EAPCET 2026 · 14 May · Shift 1 MCQ

If the equation of the line passing through the orthocenter and circumcenter of Δ ABC, whose vertices are $A(3,1), B(3,3), C(6,1)$ is $2x + by + c = 0$, then $b + c =$

(A) -6
(B) 6
(C) 0
(D) 2

Answer: (A) -6 · The council's preliminary key

Q30 AP EAPCET 2026 · 14 May · Shift 1 MCQ

The equations of the pairs of opposite sides of a parallelogram are $x^2 - 5x + 6 = 0$ and $y^2 - 6y + 5 = 0$. The equations of its diagonals are

(A) $4x - y - 7 = 0, 4x + y = 13$
(B) $4x + y - 7 = 0, 4x - y = 13$
(C) $4x - y - 7 = 0, x + 4y = 13$
(D) $4x + y + 7 = 0, x - 4y = 13$

Answer: (A) $4x - y - 7 = 0, 4x + y = 13$ · The council's preliminary key

Q31 AP EAPCET 2026 · 14 May · Shift 1 MCQ

The circumcenter of a triangle lies at the origin and its centroid is the midpoint of the line segment joining the points $(a^2 + 1, a^2 + 1)$ and $(2a, -2a)$, $a \neq 0$. Then for any a, the line that passes through its orthocentre is

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(A) $y - 2ax = 0$
(B) $y - (a^2 + 1)x = 0$
(C) $x + y = 0$
(D) $(a-1)^2x - (a+1)^2y = 0$

Answer: (D) $(a-1)^2x - (a+1)^2y = 0$ · The council's preliminary key

Q32 AP EAPCET 2026 · 14 May · Shift 2 MCQ

If $P(3,4)$ is a fixed point and Q is a variable point on the circle $x^2 + y^2 = 16$, then the locus of the midpoint of PQ is

(A) $x^2 + y^2 - 3x - 4y + \frac{9}{4} = 0$
(B) $x^2 + y^2 + 3x + 4y + 16 = 0$
(C) $x^2 + y^2 - 3x + 4y + 9 = 0$
(D) $x^2 + y^2 + 3x - 4y + \frac{9}{4} = 0$

Answer: (A) $x^2 + y^2 - 3x - 4y + \frac{9}{4} = 0$ · The council's preliminary key

Q33 AP EAPCET 2026 · 14 May · Shift 2 MCQ

The origin is shifted to the point $(1,1)$ by translation of axes and then the axes are rotated through an angle of $\frac{\pi}{3}$ about $(1,1)$ in the positive direction. After these two transformations, if the point $P(3,2)$ becomes $P(\alpha,\beta)$, then $4\alpha + 2\beta =$

(A) 0
(B) 5
(C) -7
(D) 15

Answer: (B) 5 · The council's preliminary key

Q34 AP EAPCET 2026 · 14 May · Shift 2 MCQ

If the angular bisectors of the lines $3x - 4y - 5 = 0$ and $8x - 6y + 1 = 0$ are $x + y + c = 0$ and $x - y + k = 0$ then $7(c + k) =$

(A) 2
(B) 16
(C) -35
(D) 34

Answer: (D) 34 · The council's preliminary key

Q35 AP EAPCET 2026 · 14 May · Shift 2 MCQ

If the equation of a line passing through $\left(\frac{1}{3}, -\frac{1}{2}\right)$ and making an angle of 60° with the line $2x - 3y + 4 = 0$ is $(2 + 3\sqrt{3})x + by = c$, then $c =$

(A) $5-4\sqrt{3}$
(B) $-\frac{3}{5}$
(C) $\frac{13}{6}$
(D) $\frac{2}{5+4\sqrt{5}}$

Answer: (C) $\frac{13}{6}$ · The council's preliminary key

Q36 AP EAPCET 2026 · 14 May · Shift 2 MCQ

If 'O' is the origin and 'H' is the orthocenter of a triangle formed by the lines $x+y=1$, $6x^2-13xy+6y^2=0$, then $OH=$

(A) $12\sqrt{2}$
(B) $\frac{12\sqrt{2}}{25}$
(C) $\frac{24\sqrt{2}}{25}$
(D) $24\sqrt{2}$

Answer: (B) $\frac{12\sqrt{2}}{25}$ · The council's preliminary key

Q37 AP EAPCET 2026 · 14 May · Shift 2 MCQ

If A, B are the feet of the perpendiculars drawn from $P(3,1)$ on to the pair of lines $2x^2+3xy-2y^2+3x+y+1=0$ and Q is the point of intersection of the pair of lines, then the area of the quadrilateral $PAQB$ is

(A) 25
(B) $\frac{36}{5}$
(C) $\frac{25}{6}$
(D) $\frac{49}{8}$

Answer: (B) $\frac{36}{5}$ · The council's preliminary key

Q38 AP EAPCET 2026 · 13 May · Shift 1 MCQ

If the distance of a variable point P from a fixed line $2x-y+1=0$ is twice the distance of P from another fixed line $2x+y-2=0$, then a point on the locus of P is

(A) $\left(\frac{1}{4},\frac{3}{4}\right)$
(B) $(2,3)$
(C) $(1,1)$
(D) $\left(\frac{3}{2},\frac{1}{4}\right)$

Answer: (C) $(1,1)$ · The council's preliminary key

Q39 AP EAPCET 2026 · 13 May · Shift 1 MCQ

When the origin is shifted to the point $\left(\frac{7}{4},-\frac{1}{4}\right)$ by translation of axes, the transformed equation of $x^2-2xy+3y^2+2gx+2fy-6=0$ is $8x^2-16xy+24y^2+k=0$ then $-27(2f+g)=$

(A) $4k$
(B) k
(C) $3k$
(D) $2k$

Answer: (B) k · The council's preliminary key

Q40 AP EAPCET 2026 · 13 May · Shift 1 MCQ

Let $A(1,2)$ and $C(3,4)$ be the end points of one of the diagonals of a square $ABCD$. If $B(\alpha,\beta)$ and $D(\gamma,\delta)$ are the end points of another diagonal of this square, then $\alpha+\beta-\gamma+\delta=$

(A) 0
(B) 6
(C) 8
(D) 4

Answer: (C) 8 · The council's preliminary key

Q41 AP EAPCET 2026 · 13 May · Shift 1 MCQ

The equation of a line L_1 passing through the point $(2,4)$ and making an angle $\mathrm{Tan}^{-1}(2)$ with another line $x+2y=4$ is $ax+by+c=0$. If this line L_1 is neither horizontal nor vertical, then $\frac{b+c}{a}=$

(A) 1
(B) $\frac{14}{3}$
(C) 2
(D) 0

Answer: (C) 2 · The council's preliminary key

Q42 AP EAPCET 2026 · 13 May · Shift 1 MCQ

The product of the lengths of the perpendiculars drawn from the point $(1,2)$ to the pair of lines $2x^2-3xy-2y^2=0$ is

(A) $\frac{12}{5}$
(B) 2
(C) $\frac{4}{5}$
(D) 6

Answer: (A) $\frac{12}{5}$ · The council's preliminary key

Q43 AP EAPCET 2026 · 13 May · Shift 1 MCQ

If the equation $ax^2+2hxy+by^2+2gx+2fy+c=0$ represents a pair of parallel lines, then $g^2h^2=$

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(A) a^2b^2
(B) a^2
(C) f^2
(D) a^2f^2

Answer: (D) a^2f^2 · The council's preliminary key

Q44 AP EAPCET 2026 · 13 May · Shift 2 MCQ

The locus of all the points which divide the line segment joining A $(1,2)$ and B $(5,7)$ in the ratio m : $1-m$ $(m>1)$ is

(A) $\left\{(x,y)/5x-4y+3=0,(x,y)\neq\left(\frac{5+k}{k+1},\frac{7+2k}{k+1}\right),k>0\right\}$
(B) $\{(x,y)/5x-4y+3=0\}$
(C) $\{(x,y)/5x-4y+3=0,x>5,y>7\}$
(D) $\{(x,y)/5x-4y+3=0,x<1,y<2\}$

Answer: (C) $\{(x,y)/5x-4y+3=0,x>5,y>7\}$ · Checked by our team

Q45 AP EAPCET 2026 · 13 May · Shift 2 MCQ

When the axes are rotated about the origin in the positive direction through an angle of $\frac{\pi}{4}$, if the equation $\frac{x^2}{16}+\frac{y^2}{9}=1$ is transformed to $ax^2+2hxy+by^2=c$, then $\frac{c-(a+b)}{h}=$

(A) 34
(B) 62
(C) 236
(D) 288

Answer: (A) 34 · The council's preliminary key

Q46 AP EAPCET 2026 · 13 May · Shift 2 MCQ

If $A(2,12),B(5,12+\sqrt{3}),C(3,12-\sqrt{3})$ are the vertices of a triangle ABC, then the ratio in which the perpendicular drawn through A divides the side BC is

(A) $2:\sqrt{3}$
(B) $\sqrt{3}:4$
(C) $3:5$
(D) $1:3$

Answer: (D) $1:3$ · The council's preliminary key

Q47 AP EAPCET 2026 · 13 May · Shift 2 MCQ

Let $L_1\equiv x+2y+1=0,L_2\equiv 2x+y-3=0,L_3\equiv ax+by+1=0,a,b\in\mathbb{Z}$ represent the sides of an isosceles triangle. If $L_1=0$ is the base and $(5,1)$ is a point on $L_3=0$, then $a-b=$

(A) 13
(B) -9
(C) 12
(D) -7

Answer: (A) 13 · The council's preliminary key

Q48 AP EAPCET 2026 · 13 May · Shift 2 MCQ

For $m \in \mathbb{R}$, the equation $4x^2 + 2(2m+1)xy + \left(m + \frac{1}{2}\right) y^2 = 0$ represents

(A) a pair of lines $\forall m \in \mathbb{R}$
(B) a parabola $\forall m \notin \left(-\frac{1}{2}, \frac{1}{2}\right)$
(C) a pair of lines $\forall m \notin \left(-\frac{1}{2}, \frac{1}{2}\right)$
(D) an ellipse $\forall m \in \left(\frac{1}{2}, \infty\right)$

Answer: (C) a pair of lines $\forall m \notin \left(-\frac{1}{2}, \frac{1}{2}\right)$ · The council's preliminary key

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Q49 AP EAPCET 2026 · 13 May · Shift 2 MCQ

The equation of the pair of lines joining the vertex of the parabola $y^2 = 12x$ and the points of intersection of this parabola and the focal chord drawn to this parabola having slope 2 is

(A) $4x^2 - 2xy - y^2 = 0$
(B) $4x^2 + 2xy + y^2 = 0$
(C) $x^2 - 2xy + 4y^2 = 0$
(D) $x^2 + 2xy - 4y^2 = 0$

Answer: (A) $4x^2 - 2xy - y^2 = 0$ · The council's preliminary key

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Q50 AP EAPCET 2026 · 12 May · Shift 1 MCQ

If $A(1,2)$, $B(2,1)$, $C(1,-2)$ and a variable point P, taken in that order, form a quadrilateral of area 9 square units, then the locus of P is

(A) $4x^2 - 8x - 45 = 0$
(B) $4x^2 + y^2 - 4xy - 12x - 6y + 9 = 0$
(C) $y^2 + 6y + 9 = 0$
(D) $4x^2 - 16x - 65 = 0$

Answer: (A) $4x^2 - 8x - 45 = 0$ · The council's preliminary key

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Q51 AP EAPCET 2026 · 12 May · Shift 1 MCQ

Let P be the point of intersection of the lines $2x + 3y - 5 = 0$ and $3x + 2y + 5 = 0$. If the coordinates of P are (l, m) after shifting the origin to the point $(2, 3)$ by the translation of axes, then $l + m =$

(A) 5
(B) 10
(C) -5
(D) -10

Answer: (C) -5 · The council's preliminary key

Q52 AP EAPCET 2026 · 12 May · Shift 1 MCQ

A line $L \equiv ax + 6y + 15 = 0$ is perpendicular to the line passing through the points $(-a\ , 3)$ and $(5\ , 6)$. If the line $bx + ay + k = 0$ is parallel to the line $L = 0$, then $a + 3b =$

(A) 0
(B) 60
(C) 20
(D) 40

Answer: (D) 40 · The council's preliminary key

Q53 AP EAPCET 2026 · 12 May · Shift 1 MCQ

$4x - y - 3 = 0$ and $x + 4y - 22 = 0$ represent two sides of a square. If $\left(\frac{7}{2}, \frac{5}{2}\right)$ is the point of intersection of its diagonals, then the sum of all the Y – coordinates of the vertices of that square is

(A) 14
(B) 10
(C) 7
(D) 12

Answer: (B) 10 · The council's preliminary key

Q54 AP EAPCET 2026 · 12 May · Shift 1 MCQ

Suppose A is the point of intersection of the pair of lines $L \equiv 2x^2 - 3xy - 2y^2 + 18x - y + 28 = 0$. If N, M are the feet of the perpendiculars from a point $P(3, 4)$ on to the pair of lines $L = 0$, then area (in sq units) of the quadrilateral $APNM$ is

(A) $\frac{23}{7}$
(B) $\frac{28}{5}$
(C) 15
(D) 19

Answer: (B) $\frac{28}{5}$ · The council's preliminary key

Q55 AP EAPCET 2026 · 12 May · Shift 1 MCQ

If the pair of lines $x^2 + 2hxy + by^2 = 0$ form an equilateral triangle with the line $x - y - 4 = 0$, then $2b + 3h =$

(A) 5
(B) 1
(C) 8
(D) -4

Answer: (C) 8 · The council's preliminary key

Q56 AP EAPCET 2026 · 12 May · Shift 2 MCQ

Let $A = (1, 3)$, $B = (3, 1)$ be two fixed points. If C is a point on the line $x + y + 1 = 0$, then the locus of the centroid of ΔABC is

(A) $3x + 3y - 7 = 0$
(B) $x + y = 10$
(C) $y = 4x$
(D) $x + y = 9$

Answer: (A) $3x + 3y - 7 = 0$ · The council's preliminary key

Q57 AP EAPCET 2026 · 12 May · Shift 2 MCQ

The origin is shifted to the point (h, k) by translation of axes to remove x and y terms from the equation $x^2 - 2xy + 3y^2 - 4x + 5y - 6 = 0$. Thereafter the axes are rotated about the origin through an angle θ in positive direction to remove xy-term from the resultant equation obtained by shifting the origin. Then $h - k =$

(A) $-2\tan 2\theta$
(B) $\tan 2\theta$
(C) $-\tan 2\theta$
(D) $2\tan 2\theta$

Answer: (D) $2\tan 2\theta$ · The council's preliminary key

Q58 AP EAPCET 2026 · 12 May · Shift 2 MCQ

If a variable line passing through the point of intersection Q of the lines $2x + 3y = 6$ and $3x + 2y = 6$ also intersect the X and Y axes at A and B respectively, then the locus of a point which divides AB in the ratio $1 : 2$ is

(A) $2x + 4y = 5xy$
(B) $4x + 2y = 5xy$
(C) $4x + 3y = 5xy$
(D) $3x + 4y = 5xy$

Answer: (A) $2x + 4y = 5xy$ · The council's preliminary key

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Q59 AP EAPCET 2026 · 12 May · Shift 2 MCQ

If the orthocenter of the triangle having the lines $x-2y+5=0$ and $x+y+2=0$ as two of its sides is $\left(-\frac{2}{3},\frac{4}{3}\right)$, then the centroid of the triangle is

(A) $(0,0)$
(B) $(1,3)$
(C) $(2,-4)$
(D) $(-2,-1)$

Answer: (A) $(0,0)$ · The council's preliminary key

Q60 AP EAPCET 2026 · 12 May · Shift 2 MCQ

If the equation $ax^2-3xy-2y^2+2gx+6y+8=0$ represents a pair of lines intersecting on X – axis, then $a-g=$

(A) 6
(B) 2
(C) -6
(D) -2

Answer: (A) 6 · The council's preliminary key

Q61 AP EAPCET 2026 · 12 May · Shift 2 MCQ

Let P be the point of intersection of the pair of lines represented by $2x^2+5xy+by^2-3x-4y+1=0$ and O be the origin. If $OP^2=5$, then $b=$

(A) 5
(B) 3
(C) 4
(D) 2

Answer: (B) 3 · The council's preliminary key

Q62 TS EAPCET 2026 · 11 May · Shift 1 MCQ

Let ABC be an isosceles triangle. If $A=(2,3)$, $B=(3,2)$ and BC is its base then the locus of the point C is

(A) a circle with radius 2
(B) a circle not containing the point $(1,4)$
(C) a parabola with vertex at $(2,3)$
(D) a parabola with focus at $(2,3)$

Answer: (B) a circle not containing the point $(1,4)$ · The council's preliminary key

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Q63 TS EAPCET 2026 · 11 May · Shift 1 MCQ

If (h, k) is the point to which the origin has to be shifted by translation of axes to remove the terms containing x and y from the equation $2x^2 + 3xy + y^2 + 4x - 8y + 5 = 0$ then $2h + k =$

(A) 0
(B) 1
(C) 20
(D) 16

Answer: (C) 20 · The council's preliminary key

Q64 TS EAPCET 2026 · 11 May · Shift 1 MCQ

A straight line passes through a point $A(2, 5)$ and makes an angle of 45° with the positive X-axis when measured in the positive direction. If this line intersects the line passing through the points $(1, -2)$ and $(3, -4)$ at B, then $AB =$

(A) $2\sqrt{2}$
(B) $5\sqrt{2}$
(C) $4\sqrt{2}$
(D) $\sqrt{82}$

Answer: (C) $4\sqrt{2}$ · The council's preliminary key

Q65 TS EAPCET 2026 · 11 May · Shift 1 MCQ

If d is the distance of a point $P(-1, 2)$ to the line $x + 2y - 4 = 0$ measured along a straight line which is parallel to the straight line $x - \sqrt{3}y + 5 = 0$, then d =

(A) $4 - 2\sqrt{3}$
(B) $4 + 2\sqrt{3}$
(C) $2 - 2\sqrt{3}$
(D) $2 + 2\sqrt{3}$

Answer: (A) $4 - 2\sqrt{3}$ · The council's preliminary key

Q66 TS EAPCET 2026 · 11 May · Shift 1 MCQ

A ray of light $x + y = 1$ gets reflected upon reaching X-axis. If the reflected ray forms a triangle with X-axis and the vertical line $x = 2$, then the area of that triangle is

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(A) $\frac{1}{2}$
(B) 1
(C) 2
(D) 4

Answer: (A) $\frac{1}{2}$ · The council's preliminary key

Q67 TS EAPCET 2026 · 11 May · Shift 1 MCQ

The centroid of the triangle formed by the lines $6x^2 + xy - 2y^2 = 0$ and $x + 2y + 3 = 0$ is

(A) $\left(\frac{3}{10}, -\frac{23}{20}\right)$
(B) $\left(\frac{3}{10}, -\frac{13}{10}\right)$
(C) $\left(-\frac{3}{10}, \frac{5}{4}\right)$
(D) $\left(-\frac{3}{5}, \frac{5}{4}\right)$

Answer: (A) $\left(\frac{3}{10}, -\frac{23}{20}\right)$ · The council's preliminary key

Q68 TS EAPCET 2026 · 11 May · Shift 2 MCQ

Let $A(\alpha, 0)$ be a point on X-axis. The locus of the midpoints of the line segments joining A and any point P on the parabola $y = 16 - x^2$ is

(A) a circle
(B) an ellipse
(C) a pair of lines
(D) a parabola

Answer: (D) a parabola · The council's preliminary key

Q69 TS EAPCET 2026 · 11 May · Shift 2 MCQ

The transformed equation of $4x^2 - 4xy + 7y^2 - 24 = 0$ in new coordinate system when the axes are rotated through an angle θ about the origin in the positive direction is $\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1$. If $0 < \theta < \frac{\pi}{4}$, then $1 + b^2 \sin^2\theta =$

(A) $a^2 \cos^2\theta$
(B) $a^2 + \cos^2\theta$
(C) $a^2 \sin^2\theta$
(D) $\frac{a^2}{\sin^2\theta}$

Answer: (C) $a^2 \sin^2\theta$ · The council's preliminary key

Q70 TS EAPCET 2026 · 11 May · Shift 2 MCQ

If the equation of the line joining the points $A(x_1, y_1)$ and $B(x_2, y_2)$ is $ax + by = c$ and the distance between A and B is $\sqrt{a^2 + b^2}$, then $c^2 =$

(A) $\frac{x_1^2 + y_1^2}{x_2 y_2}$

(B) $\frac{x_1 + x_2}{y_1 + y_2}$

(C) $(x_1 y_2 - x_2 y_1)^2$

(D) $(x_1 x_2 - y_1 y_2)^2$

Answer: (C) $(x_1 y_2 - x_2 y_1)^2$ · The council's preliminary key

Q71 TS EAPCET 2026 · 11 May · Shift 2 MCQ

Two adjacent sides of a parallelogram ABCD are $x - y + 1 = 0$ and $3x - y = 9$. If one of its diagonals is $7x - 5y + 3 = 0$, then the equation of the other diagonal is

(A) $x - 3y + 13 = 0$

(B) $5x + 7y = 13$

(C) $x + y - 2 = 0$

(D) $x + 3y = 4$

Answer: (A) $x - 3y + 13 = 0$ · The council's preliminary key

Q72 TS EAPCET 2026 · 11 May · Shift 2 MCQ

The line common to the two families of concurrent lines $x + y + \lambda(4x + 3y - 1) = 0$ and $2x - 3y + k(x + y - 5) = 0$ is along the base of a triangle. If $(1, 1)$ is the vertex of the triangle, then the perpendicular distance from that vertex to its base is

(A) $\frac{1}{\sqrt{5}}$

(B) $\frac{3}{\sqrt{7}}$

(C) $\frac{4}{\sqrt{13}}$

(D) $\frac{9}{\sqrt{11}}$

Answer: (C) $\frac{4}{\sqrt{13}}$ · The council's preliminary key

Q73 TS EAPCET 2026 · 11 May · Shift 2 MCQ

Equation of the image of the pair of lines $ax^2 + 2hxy + by^2 = 0$ with respect to $y = 0$ is

(A) $ax^2 - 2hxy - by^2 = 0$

(B) $ax^2 - 2hxy + by^2 = 0$

(C) $ax^2 + 2hxy - by^2 = 0$

(D) $bx^2 - 2hxy + ay^2 = 0$

Answer: (B) $ax^2 - 2hxy + by^2 = 0$ · The council's preliminary key

Q74 TS EAPCET 2026 · 11 May · Shift 2 MCQ

The locus of the centre of a circle touching the lines $x + 2y = 0$ and $x - 2y = 0$ is

(A) $xy = 0$
(B) $x = 0$
(C) $y = 0$
(D) $x + y = 0$

Answer: (A) $xy = 0$ · The council's preliminary key

Q75 TS EAPCET 2026 · 10 May · Shift 1 MCQ

If the distance of a variable point P from a fixed point $(3, -4)$ is $\frac{2}{3}$ times the distance of P from a fixed line $x - y + 2 = 0$ and the locus of that point P is $ax^2 + 4xy + by^2 - 62x + 80y + c = 0$ then $2c =$

(A) $31ab$
(B) $31(a + b)$
(C) $7ab$
(D) $7(a + b)$

Answer: (B) $31(a + b)$ · The council's preliminary key

Q76 TS EAPCET 2026 · 10 May · Shift 1 MCQ

When axes are rotated through an angle θ about the origin in positive direction, if the equation $3x^2 + \sqrt{3}xy - 5 = 0$ is transformed to the form $ax^2 + by^2 = 10$ then $ab =$

(A) 6
(B) -3
(C) 4
(D) -12

Answer: (B) -3 · The council's preliminary key

Q77 TS EAPCET 2026 · 10 May · Shift 1 MCQ

Two straight lines are drawn parallel to the straight line $L \equiv 5x - 12y - 13 = 0$ which are at a distance of 13 units from the origin. Among these lines, if $ax + by + c = 0$ is the line which is closest to the given line $L = 0$ then $\frac{a-2b+c}{a+b} =$

(A) 0
(B) 140
(C) 20
(D) 1

Answer: (C) 20 · The council's preliminary key

Q78 TS EAPCET 2026 · 10 May · Shift 1 MCQ

If $x + y - 2 = 0$ and $2x - y - 1 = 0$ represent two adjacent sides of a parallelogram and $x + 4y - 14 = 0$ represents one of its diagonals then one of the vertices of the parallelogram is

(A) $(0, \frac{7}{2})$
(B) $(-2, 3)$
(C) $(-1, 6)$
(D) $(2, -4)$

Answer: (C) $(-1, 6)$ · The council's preliminary key

Q79 TS EAPCET 2026 · 10 May · Shift 1 MCQ

If the point M is the foot of the perpendicular drawn from the point $P(0, 9)$ to the straight line $2x - 5y + 16 = 0$ and $Q = (12, 8)$ then the orthocentre of ΔMPQ is

(A) $(2, 4)$
(B) $(6, \frac{17}{2})$
(C) $(7, 6)$
(D) $(\frac{14}{3}, 7)$

Answer: (A) $(2, 4)$ · The council's preliminary key

Q80 TS EAPCET 2026 · 10 May · Shift 1 MCQ

If the pair of lines joining the origin to the points of intersection of the curve $2x^2 - 5xy - 3y^2 - 10x + 27y - 8 = 0$ and the straight line $ax + y = 1$ are perpendicular to each other and if 'a' is not an integer, then $a =$

(A) $\frac{3}{2}$
(B) $\frac{9}{4}$
(C) $-\frac{9}{4}$
(D) $-\frac{3}{2}$

Answer: (C) $-\frac{9}{4}$ · The council's preliminary key

Q81 TS EAPCET 2026 · 10 May · Shift 2 MCQ

Let P be a variable point such that it forms a triangle of area 14 square units with two fixed points $(-3, 4)$ and $(4, -3)$. Then the locus of point P represents a pair of parallel lines. The distance between these two parallel lines is

(A) $4\sqrt{2}$
(B) 8
(C) 6
(D) $3\sqrt{2}$

Answer: (A) $4\sqrt{2}$ · The council's preliminary key

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Q82 TS EAPCET 2026 · 10 May · Shift 2 MCQ

If θ is an acute angle through which the coordinate axes are to be rotated about the origin in anti-clockwise direction to remove xy-term from the equation $4x^2 + 3xy + y^2 + 1 = 0$, then $(1 + \tan\theta)^2 =$

(A) 2
(B) 4
(C) 1
(D) 3

Answer: (A) 2 · The council's preliminary key

Q83 TS EAPCET 2026 · 10 May · Shift 2 MCQ

If the sum of the reciprocals of the intercepts made by a variable straight line on the coordinate axes is equal to the arithmetic mean of $\frac{2}{3}$ and $\frac{4}{5}$, then the point of concurrence of all such lines is

(A) $\left(\frac{2}{3}, \frac{4}{5}\right)$
(B) $\left(\frac{15}{11}, \frac{15}{11}\right)$
(C) $\left(\frac{22}{15}, \frac{22}{15}\right)$
(D) $\left(\frac{11}{15}, \frac{11}{15}\right)$

Answer: (B) $\left(\frac{15}{11}, \frac{15}{11}\right)$ · The council's preliminary key

Q84 TS EAPCET 2026 · 10 May · Shift 2 MCQ

If the point $(a, 2a)$, $a > 0$ lies in the region containing acute angle between the lines $3x - y - 3 = 0$ and $6x - y - 6 = 0$ then the values of 'a' lies in the interval

(A) $\left(\frac{3}{2}, 3\right)$
(B) $\left(1, \frac{3}{2}\right)$
(C) $(1, 3)$
(D) $\left(\frac{3}{2}, 4\right)$

Answer: (A) $\left(\frac{3}{2}, 3\right)$ · The council's preliminary key

Q85 TS EAPCET 2026 · 10 May · Shift 2 MCQ

If the image of the point $(2, 6)$ in the line $x - 3y + 10 = 0$ is (h, k), then $2h - k =$

(A) 0
(B) 1
(C) -1
(D) 4

Answer: (D) 4 · The council's preliminary key

Q86 TS EAPCET 2026 · 10 May · Shift 2 MCQ

If the line $2y-3=0$ bisects the angle between the lines $x+2y-k=0$ and $x-2y+k=0$ then a point that lies on the bisector of the other angle between these lines is

(A) (k,k)
(B) $(0,k)$
(C) $(k,0)$
(D) $(k,-k)$

Answer: (B) $(0,k)$ · The council's preliminary key

Q87 TS EAPCET 2026 · 9 May · Shift 1 MCQ

If $S=\{(x,y)/x=2\cos t+3\sin t,\ y=3\cos t+2\sin t,\ t\in R\}$, then the points of S lie on the curve

(A) $13x^2+24xy+13y^2=25$
(B) $x^2+y^2+12x+12y+4=0$
(C) $13x^2-24xy+13y^2=25$
(D) $x^2-2xy+y^2=8$

Answer: (C) $13x^2-24xy+13y^2=25$ · The council's preliminary key

Q88 TS EAPCET 2026 · 9 May · Shift 1 MCQ

If the coordinate axes are rotated about the origin in the positive direction through an angle 60° to get the transformed equation of $x^2+y^2-4x-8y+16=0$ as $x^2+y^2+2Gx+2Fy+C=0$, then $G+F+C=$

(A) $13-\sqrt{3}$
(B) $16+\frac{\sqrt{3}}{2}$
(C) $14-\frac{\sqrt{3}}{2}$
(D) $15+\sqrt{3}$

Answer: (A) $13-\sqrt{3}$ · The council's preliminary key

Q89 TS EAPCET 2026 · 9 May · Shift 1 MCQ

$(3a+1)x+(7a+2)y=17a+5$, a being a parameter, represents a family of concurrent lines. If 'd' is the distance from the point $(3,1)$ to a line of this family having slope 1, then $2d^2=$

(A) 4
(B) 3
(C) 9
(D) 16

Answer: (C) 9 · The council's preliminary key

Q90 TS EAPCET 2026 · 9 May · Shift 1 MCQ

Let a ray of light passing through a point $(7, 2)$ reflects on the line $2x + y = 1$ and the reflected ray passes through $(3, 10)$. The equation of the incident ray is

(A) $x - 4y + 1 = 0$
(B) $3x - 2y = 17$
(C) $x + y = 9$
(D) $x + 8y - 23 = 0$

Answer: (D) $x + 8y - 23 = 0$ · The council's preliminary key

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Q91 TS EAPCET 2026 · 9 May · Shift 1 MCQ

Let ABC be an isosceles triangle. If B is a point on the positive X-axis, $a = 4\sqrt{3}$, c is an integer, $\angle A = 120^\circ$ and $A = (-1, 0)$, then the distance of C from the origin is

(A) 15
(B) 48
(C) $\sqrt{21}$
(D) $\sqrt{26}$

Answer: (C) $\sqrt{21}$ · The council's preliminary key

Q92 TS EAPCET 2026 · 9 May · Shift 1 MCQ

One of the pair of lines $x^2 - 3y^2 - 4x - 6\sqrt{3}y - 5 = 0$ is $x + by + c = 0$ $(b < 0)$. If the other line intersects the curve $x^2 - 5y^2 - 4x = 0$ at two points A and B, then $\angle \mathrm{AOB} =$

(A) $\frac{\pi}{4}$
(B) $\frac{\pi}{3}$
(C) $\frac{\pi}{6}$
(D) $\frac{\pi}{2}$

Answer: (D) $\frac{\pi}{2}$ · The council's preliminary key

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Q93 TS EAPCET 2026 · 9 May · Shift 2 MCQ

If a straight line passing through the point $(2, 3)$ intersects X-axis at A and Y-axis at B, then the locus of a point which divides AB in the ratio $2 : 3$ is

(A) $x^2 - 5xy + 6y^2 = 0$
(B) $x^2 + y^2 - 4x - 6y + 4 = 0$
(C) $x + y = 5$
(D) $6x - 5xy + 6y = 0$

Answer: (D) $6x - 5xy + 6y = 0$ · The council's preliminary key

Q94 TS EAPCET 2026 · 9 May · Shift 2 MCQ

When the origin is shifted to the point $\left(-\frac{4}{7}, \frac{6}{7}\right)$ by translation of axes, if the transformed equation of $2x^2 + 5xy + 4y^2 - 2x - 4y + 2 = 0$ is $ax^2 + 35xy + by^2 + 2gx + 2fy + c = 0$, then

(A) $a + b + c = 48$
(B) $2g + 2f + c = 28$
(C) $a + b = 2f + c$
(D) $a + c = 2g + b$

Answer: (A) $a + b + c = 48$ · The council's preliminary key

Q95 TS EAPCET 2026 · 9 May · Shift 2 MCQ

If the inclination of a straight line $x - y + 1 = 0$ with another straight line L is 30° and m is the slope of the line L, then $m^2 + 1 =$

(A) $4m$
(B) $2m$
(C) $-2m$
(D) $-4m$

Answer: (A) $4m$ · The council's preliminary key

Q96 TS EAPCET 2026 · 9 May · Shift 2 MCQ

If A(2,1), B(4,k), C(3,4) are the vertices of a triangle right angled at B and k is not an odd number, then the equation of the line joining the orthocentre and circumcentre of ΔABC is

(A) $x + y = 6$
(B) $x - y = 0$
(C) $3x + y = 14$
(D) $x + 3y = 10$

Answer: (D) $x + 3y = 10$ · The council's preliminary key

Q97 TS EAPCET 2026 · 9 May · Shift 2 MCQ

Let ABC be a triangle and $A = (-2, 3)$. If $7x - y + 2 = 0$ and $4x - 7y + 44 = 0$ are the equations of the medians drawn through the vertices B and C respectively, then $AB =$

(A) $5\sqrt{2}$
(B) $3\sqrt{5}$
(C) $\sqrt{5}$
(D) $\frac{\sqrt{57}}{2}$

Answer: (B) $3\sqrt{5}$ · The council's preliminary key

Q98 TS EAPCET 2026 · 9 May · Shift 2 MCQ

Orthocenter of the triangle formed by the pair of lines $2x^2 - xy - 3y^2 = 0$ and the straight line $x - y + 4 = 0$ is

(A) $(-3, 1)$
(B) $(-2, 2)$
(C) $(4, 0)$
(D) $(1, 5)$

Answer: (B) $(-2, 2)$ · The council's preliminary key

Q99 AP EAPCET 2025 · 27 May · Shift 1 MCQ

The locus of the third vertex of a right-angled triangle, the ends of whose hypotenuse are $(1, 2)$ and $(4, 5)$, is

(A) $x^2 + y^2 + 5x + 7y + 14 = 0$
(B) $3x + 3y - 1 = 0$
(C) $3x + 3y + 1 = 0$
(D) $x^2 + y^2 - 5x - 7y + 14 = 0$

Answer: (D) $x^2 + y^2 - 5x - 7y + 14 = 0$ · The council's preliminary key

Q100 AP EAPCET 2025 · 27 May · Shift 1 MCQ

The coordinate axes are rotated about the origin in the counter clockwise direction through an angle 60°. If a and b are the intercepts made on the new axes by a straight line whose equation referred to the original axes is $x + y = 1$, then $\frac{1}{a^2} + \frac{1}{b^2} =$

(A) 2
(B) 3
(C) 4
(D) 6

Answer: (A) 2 · The council's preliminary key

Q101 AP EAPCET 2025 · 27 May · Shift 1 MCQ

The image of a point $(2, -1)$ with respect to the line $x - y + 1 = 0$ is

(A) $(2, -3)$
(B) $(-2, 3)$
(C) $(0, 1)$
(D) $(-1, 0)$

Answer: (B) $(-2, 3)$ · The council's preliminary key

Q102 AP EAPCET 2025 · 27 May · Shift 1 MCQ

If a straight line is at a distance of 10 units from the origin and the perpendicular drawn from the origin to it makes an angle $\frac{\pi}{4}$ with the negative X-axis in the negative direction then the equation of that line is

(A) $x + y + 10\sqrt{2} = 0$
(B) $x - y - 10\sqrt{2} = 0$
(C) $x + y - 10\sqrt{2} = 0$
(D) $x - y + 10\sqrt{2} = 0$

Answer: (D) $x - y + 10\sqrt{2} = 0$ · The council's preliminary key

Q103 AP EAPCET 2025 · 27 May · Shift 1 MCQ

If one of the lines given by the pair of lines $3x^2 - 2y^2 + axy = 0$ is making an angle 60° with x-axis then a =

(A) $\sqrt{3}$
(B) $\frac{1}{\sqrt{3}}$
(C) 3
(D) $\frac{1}{3}$

Answer: (A) $\sqrt{3}$ · The council's preliminary key

Q104 AP EAPCET 2025 · 27 May · Shift 1 MCQ

A straight line passing through the origin O meets the parallel lines $4x + 2y = 9$ and $2x + y + 6 = 0$ at the points P and Q respectively. Then the point O divides the line segment PQ in the ratio

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(A) $1:2$
(B) $2:1$
(C) $3:4$
(D) $4:3$

Answer: (C) $3:4$ · The council's preliminary key

Q105 AP EAPCET 2025 · 26 May · Shift 1 MCQ

A(4, 3), B(2, 5) are two points. If P is a variable point on the same side as that of the origin with respect to the line AB and is at most at a distance of 5 units from the midpoint of AB, then the locus of P is

(A) $x^2+y^2-6x-8y=0$
(B) $x^2+y^2-6x-8y\leq 0, x+y-7<0$
(C) $x^2+y^2+6x+8y-25=0, x+y-7\leq 0$
(D) $x^2+y^2-6x+8y\geq 0, x+y-7<0$

Answer: (B) $x^2+y^2-6x-8y\leq 0, x+y-7<0$ · The council's preliminary key

Q106 AP EAPCET 2025 · 26 May · Shift 1 MCQ

By shifting the origin to the point (2, 3) through translation of axes, if the equation of the curve $x^2+3xy-2y^2+4x-y-20=0$ is transformed to the form $Ax^2+Bxy+Cy^2+Dx+Ey+F=0$, then $D+E+F=$

(A) -1
(B) 1
(C) -15
(D) 15

Answer: (A) -1 · The council's preliminary key

Q107 AP EAPCET 2025 · 26 May · Shift 1 MCQ

The points $(2,3)$ and $\left(-4,-\frac{4}{3}\right)$ lie on the opposite sides of the line $L\equiv 5x-6y+k=0$ and k is an integer. If the points $(1,2)$ and $(4,5)$ lie on the same side of the line $L=0$, then the perpendicular distance from origin to the line $L=0$ is

(A) $\frac{7}{\sqrt{61}}$
(B) $\frac{9}{\sqrt{61}}$
(C) $\frac{10}{\sqrt{61}}$
(D) $\frac{11}{\sqrt{61}}$

Answer: (D) $\frac{11}{\sqrt{61}}$ · The council's preliminary key

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Q108 AP EAPCET 2025 · 26 May · Shift 1 MCQ

If the incentre of the triangle formed by the lines $x-2=0$, $x+y-1=0$, $x-y+3=0$ is (α,β), then $\beta=$

(A) 2
(B) $\sqrt{2}+1$
(C) $\dfrac{2\sqrt{2}-1}{\sqrt{2}+1}$
(D) 4

Answer: (A) 2 · The council's preliminary key

Q109 AP EAPCET 2025 · 26 May · Shift 1 MCQ

If the equation of the pair of straight lines intersecting at (a, b) and perpendicular to the pair of lines $3x^2-4xy+5y^2=0$ is $lx^2+2hxy+my^2-32x-26y+c=0$, then $\frac{a+b+c}{l+h+m}=$

(A) $\frac{38}{5}$
(B) $\frac{17}{2}$
(C) $\frac{15}{6}$
(D) $\frac{49}{6}$

Answer: (A) $\frac{38}{5}$ · The council's preliminary key

Q110 AP EAPCET 2025 · 26 May · Shift 1 MCQ

PQR is a right angled isosceles triangle with right angle at P(2, 1). If the equation of the line QR is $2x+y=3$, then the equation representing the pair of lines PQ and PR is

(A) $3x^2-3y^2-8xy-10x-15y-20=0$
(B) $3x^2-3y^2+8xy+20x+10y+25=0$
(C) $3x^2-3y^2+8xy-20x-10y+25=0$
(D) $3x^2-3y^2+8xy+10x+15y+20=0$

Answer: (C) $3x^2-3y^2+8xy-20x-10y+25=0$ · The council's preliminary key

Q111 AP EAPCET 2025 · 26 May · Shift 2 MCQ

If $A(\cos\alpha,\sin\alpha)$, $B(\sin\alpha,-\cos\alpha)$, $C(1,2)$ are the vertices of a $\triangle ABC$ then the locus of its centroid is

(A) $3(x^2+y^2)-2x-4y+1=0$
(B) $x^2+y^2-2x-4y+1=0$
(C) $x^2+y^2-2x-4y+3=0$
(D) $2(x^2+y^2)-2x-4y+5=0$

Answer: (A) $3(x^2+y^2)-2x-4y+1=0$ · The council's preliminary key

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Q112 AP EAPCET 2025 · 26 May · Shift 2 MCQ

If the axes are translated to the orthocentre of the triangle formed by the points A(7, 5), B(−5, −7), C(7, −7), then the coordinates of the incentre of the triangle in the new system are

(A) $(-6, 6)$
(B) $\left(-\frac{5}{\sqrt{2}}, \frac{7}{\sqrt{2}}\right)$
(C) $\left(\frac{-12}{2+\sqrt{2}}, \frac{12}{2+\sqrt{2}}\right)$
(D) $(-5\sqrt{2}, -7\sqrt{2})$

Answer: (C) $\left(\frac{-12}{2+\sqrt{2}}, \frac{12}{2+\sqrt{2}}\right)$ · The council's preliminary key

Q113 AP EAPCET 2025 · 26 May · Shift 2 MCQ

The angle made by a line L with positive X - axis measured in the positive direction is $\frac{\pi}{6}$ and the intercept made by L on Y - axis is negative. If L is at a distance of 5 units from the origin, then the perpendicular distance from the point $\left(1, -\sqrt{3}\right)$ to the line L is

(A) 2
(B) 1
(C) 4
(D) 3

Answer: (D) 3 · The council's preliminary key

Q114 AP EAPCET 2025 · 26 May · Shift 2 MCQ

L_1 and L_2 are two lines having slopes 2 and $-\frac{1}{2}$ respectively. If both L_1 and L_2 are concurrent with the lines $x - y + 2 = 0$ and $2x + y + 3 = 0$, then sum of the absolute values of the intercepts made by the lines L_1 and L_2 on the coordinate axes is

(A) 2
(B) 7
(C) 12
(D) 9

Answer: (B) 7 · The council's preliminary key

Q115 AP EAPCET 2025 · 26 May · Shift 2 MCQ

The Lines $L_1 : y - x = 0$ and $L_2 : 2x + y = 0$ intersect the line $L_3 : y + 2 = 0$ at P and Q respectively. The bisector of the angle between L_1 and L_2 divides the line segment PQ internally at R.

Statement-I : PR : RQ = $2\sqrt{2} : \sqrt{5}$

Statement-II : In any triangle, bisector of an angle divides that triangle into two similar triangles.

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(A) Statement-I is true, Statement-II is false

(B) Statement-I is false, Statement-II is true

(C) Statement-I is true, Statement-II is true, Statement-II is a correct explanation for Statement-I

(D) Statement-I is true, Statement-II is true, Statement-II is not a correct explanation for Statement-I

Answer: (A) Statement-I is true, Statement-II is false · The council's preliminary key

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Q116 AP EAPCET 2025 · 26 May · Shift 2 MCQ

If $2x^2 + 3xy - 2y^2 - 5x + 2fy - 3 = 0$ represents a pair of straight lines, then one of the possible values of f is

(A) $-\frac{25}{2}$

(B) 25

(C) -5

(D) $\frac{5}{2}$

Answer: (D) $\frac{5}{2}$ · The council's preliminary key

Q117 AP EAPCET 2025 · 24 May · Shift 1 MCQ

A(a, 0) is a fixed point and θ is a parameter such that $0 < \theta < 2\pi$. If P$(a\cos\theta, a\sin\theta)$ is a point on the circle $x^2 + y^2 = a^2$ and Q$(b\sin\theta, -b\cos\theta)$ is a point on the circle $x^2 + y^2 = b^2$, then the locus of the centroid of the triangle APQ is

(A) a circle with centre at $\left(\frac{a}{3}, 0\right)$ and radius $\left(\frac{\sqrt{a^2+b^2}}{3}\right)$

(B) a circle with centre at $(a, 0)$ and radius $\left(\frac{\sqrt{a^2+b^2}}{3}\right)$

(C) a parabola with focus at $\left(\frac{a}{3}, 0\right)$

(D) a parabola with focus at $(a, 0)$

Answer: (A) a circle with centre at $\left(\frac{a}{3}, 0\right)$ **and radius** $\left(\frac{\sqrt{a^2+b^2}}{3}\right)$ · The council's preliminary key

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Q118 AP EAPCET 2025 · 24 May · Shift 1 MCQ

The point $P(4, 1)$ undergoes the following transformations in succession :

(i) origin is shifted to the point $(1, 6)$ by translation of axes

(ii) translation through a distance of 2 units along the positive direction of X-axis

(iii) rotation of axes through an angle of 90° in the positive direction

Then the coordinates of the point P in its final position are

(A) $(3, 4)$
(B) $(4, 3)$
(C) $(-5, -5)$
(D) $(1, 0)$

Answer: (C) $(-5, -5)$ · The council's preliminary key

Q119 AP EAPCET 2025 · 24 May · Shift 1 MCQ

$L_1 \equiv ax - 3y + 5 = 0$ and $L_2 \equiv 4x - 6y + 8 = 0$ are two parallel lines. If p, q are the intercepts made by $L_1 = 0$ and m, n are the intercepts made by $L_2 = 0$ on the X, Y- coordinate axes respectively, then the equation of the line passing through the points (p, q) and (m, n) is

(A) $3x + 3y + 2 = 0$
(B) $2x + 3y = 0$
(C) $6x + 6y + 5 = 0$
(D) $x + 3y = 2$

Answer: (B) $2x + 3y = 0$ · The council's preliminary key

Q120 AP EAPCET 2025 · 24 May · Shift 1 MCQ

If (h, k) is the image of the point $(2, -3)$ with respect to the line $5x - 3y = 2$, then $h + k =$

(A) -3
(B) $-\frac{3}{34}$
(C) $-\frac{1}{34}$
(D) 5

Answer: (A) -3 · The council's preliminary key

Q121 AP EAPCET 2025 · 24 May · Shift 1 MCQ

If the pair of lines $ax^2 - 7xy - 3y^2 = 0$ and $2x^2 + xy - 6y^2 = 0$ have exactly one line in common and 'a' is an integer, then the equation of the pair of bisectors of the angles between the lines $ax^2 - 7xy - 3y^2 = 0$ is

(A) $7x^2 + 18xy - 7y^2 = 0$
(B) $x^2 - 16xy - y^2 = 0$
(C) $7x^2 - 9xy - 7y^2 = 0$
(D) $x^2 - 8xy - y^2 = 0$

Answer: (A) $7x^2 + 18xy - 7y^2 = 0$ · The council's preliminary key

Q122 AP EAPCET 2025 · 24 May · Shift 1 MCQ

If the angle between the pair of lines $2x^2 + 2hxy + 2y^2 - x + y - 1 = 0$ is $\mathrm{Tan}^{-1}(3/4)$ and h is a positive rational number, then the point of intersection of these two lines is

(A) $(1, -1)$
(B) $\left(\frac{-1}{9}, \frac{1}{9}\right)$
(C) $(-1, 1)$
(D) $(3, 2)$

Answer: (C) $(-1, 1)$ · The council's preliminary key

Q123 AP EAPCET 2025 · 23 May · Shift 1 MCQ

When the axes are rotated through an angle θ about origin in anticlockwise direction and then translated to the new origin $(2, -2)$, if the transformed equation of the equation of $x^2 + y^2 = 4$ is $X^2 + Y^2 + aX + bY + c = 0$ then $a + b + c =$

(A) 4
(B) 8
(C) 0
(D) 12

Answer: (A) 4 · The council's preliminary key

Q124 AP EAPCET 2025 · 23 May · Shift 1 MCQ

If the perpendicular distances from the points $(2, 3)$, $(4, a)$ and (α, β) on to the line $3x + 4y - 3 = 0$ are equal and $4\alpha - 3\beta + 1 = 0$ then sum of all possible values of a, α and β is

(A) $\frac{-79}{10}$
(B) $\frac{83}{15}$
(C) $\frac{-73}{5}$
(D) $\frac{28}{15}$

Answer: (A) $\frac{-79}{10}$ · The council's preliminary key

Q125 AP EAPCET 2025 · 23 May · Shift 1 MCQ

The equation of the base of an equilateral triangle is $x + y = 2$ and its opposite vertex is $(2, 1)$. If m_1, m_2 are the slopes of the other two sides and the length of its side is a, then $|m_1 - m_2| + a\sqrt{2} =$

(A) $8\sqrt{3}$
(B) $\frac{8}{\sqrt{3}}$
(C) $4\sqrt{\frac{2}{3}}$
(D) $8\sqrt{\frac{2}{3}}$

Answer: (B) $\frac{8}{\sqrt{3}}$ · The council's preliminary key

Q126 AP EAPCET 2025 · 23 May · Shift 1 MCQ

The triangle formed by the lines $2x^2 + xy - 6y^2 = 0$ and $x + y - 1 = 0$ is

(A) equilateral
(B) isosceles
(C) right angled
(D) scalene

Answer: (D) scalene · The council's preliminary key

Q127 AP EAPCET 2025 · 23 May · Shift 1 MCQ

If $\left(\frac{2}{3}, 0\right)$ is the centroid of the triangle formed by the lines $4x^2 - y^2 = 0$ and $lx + my + n = 0$, then $l + m + n =$

(A) 1
(B) 0
(C) -1
(D) 2

Answer: (B) 0 · The council's preliminary key

Q128 AP EAPCET 2025 · 23 May · Shift 2 MCQ

If the locus of a point which is equidistant from the coordinate axes forms a triangle with the line $y = 3$, then the area of the triangle is

(A) 18
(B) 9
(C) 6
(D) 3

Answer: (B) 9 · The council's preliminary key

Q129 AP EAPCET 2025 · 23 May · Shift 2 MCQ

After the coordinate axes are rotated through an angle $\frac{\pi}{4}$ in the anti clockwise direction without shifting the origin, if the equation $x^2 + y^2 - 2x - 4y - 20 = 0$ transforms to $ax^2 + 2hxy + by^2 + 2gx + 2fy + c = 0$ in the new coordinate system, then $\begin{vmatrix} a & h & g \\ h & b & f \\ g & f & c \end{vmatrix} =$

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(A) -20
(B) -25
(C) -30
(D) -35

Answer: (B) -25 · The council's preliminary key

Q130 AP EAPCET 2025 · 23 May · Shift 2 MCQ

A(−2, 3) is a point on the line $4x + 3y - 1 = 0$. If the points on the line that are 10 units away from the point A are (x_1, y_1) and (x_2, y_2), then $(x_1 + y_1)^2 + (x_2 + y_2)^2 =$

(A) 10
(B) 90
(C) 180
(D) 405

Answer: (A) 10 · The council's preliminary key

Q131 AP EAPCET 2025 · 23 May · Shift 2 MCQ

If α is the angle made by the perpendicular drawn from origin to the line $12x - 5y + 13 = 0$ with the positive X-axis in anti-clockwise direction, then $\alpha =$

(A) $\text{Tan}^{-1}\frac{5}{12}$
(B) $2\pi - \text{Tan}^{-1}\frac{5}{12}$
(C) $\pi - \text{Tan}^{-1}\frac{5}{12}$
(D) $\pi + \text{Tan}^{-1}\frac{5}{12}$

Answer: (C) $\pi - \text{Tan}^{-1}\frac{5}{12}$ · The council's preliminary key

Q132 AP EAPCET 2025 · 23 May · Shift 2 MCQ

If the equation of the pair of lines passing through $(1, 1)$ and perpendicular to the pair of lines $2x^2 + xy - y^2 - x + 2y - 1 = 0$ is $ax^2 + 2hxy + by^2 + 2gx + 3y = 0$, then $\frac{b}{a} =$

(A) g/h
(B) $2(g + h)$
(C) $2(g - h)$
(D) gh

Answer: (B) $2(g + h)$ · The council's preliminary key

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Q133 AP EAPCET 2025 · 23 May · Shift 2 MCQ

If the combined equation of the lines joining the origin to the points of intersection of the curve $x^2 + y^2 - 2x - 4y + 2 = 0$ and the line $x + y - 2 = 0$ is $(l_1x + m_1y)(l_2x + m_2y) = 0$, then $l_1 + l_2 + m_1 + m_2 =$

(A) 16
(B) -6
(C) -2
(D) 10

Answer: (C) -2 · The council's preliminary key

Q134 AP EAPCET 2025 · 22 May · Shift 1 MCQ

A straight line passing through a fixed point $(2, 3)$ intersects the coordinate axes at points P and Q. If O is the origin and R is a variable point such that $OPRQ$ is a rectangle, then the locus of R is

(A) $3x + 2y = xy$
(B) $2x + 3y = xy$
(C) $3x + 2y = 6$
(D) $3x + 2y = 6xy$

Answer: (A) $3x + 2y = xy$ · The council's preliminary key

Q135 AP EAPCET 2025 · 22 May · Shift 1 MCQ

By rotating the axes about the origin in anti-clockwise direction with certain angle, if the equation $x^2 + 4xy + y^2 = 1$ is transformed to $\frac{x^2}{a^2} - \frac{y^2}{b^2} = 1$ then $\sqrt{\frac{a^2+b^2}{a^2}} =$

(A) 2
(B) $\frac{\sqrt{13}}{3}$
(C) $\frac{3}{2}$
(D) $\sqrt{10}$

Answer: (A) 2 · The council's preliminary key

Q136 AP EAPCET 2025 · 22 May · Shift 1 MCQ

If the lines $x + 2ay + a = 0$, $x + 3by + b = 0$, $x + 4cy + c = 0$ are concurrent, then a, b, c are in

(A) Arithmetic Progression
(B) Geometric Progression
(C) Harmonic Progression
(D) Arithmetico-geometric Progression

Answer: (C) Harmonic Progression · The council's preliminary key

Q137 AP EAPCET 2025 · 22 May · Shift 1 MCQ

If M is the foot of the perpendicular drawn from the origin to the line $x - 2y + 3 = 0$ which meets the X and Y-axes at A and B respectively, then AM $=$

(A) $\frac{6\sqrt{10}}{5}$
(B) $6\sqrt{5}$
(C) $\frac{6\sqrt{5}}{5}$
(D) $6\sqrt{10}$

Answer: (C) $\frac{6\sqrt{5}}{5}$ · The council's preliminary key

Q138 AP EAPCET 2025 · 22 May · Shift 1 MCQ

One line of the pair of lines $x^2 + xy - 2y^2 = 0$ is perpendicular to one line of the pair of lines $3y^2 - 5xy - 2x^2 = 0$. If the combined equation of the two lines other than those two perpendicular lines is $ax^2 + 2hxy + by^2 = 0$, then $a + 2h + b =$

(A) -1
(B) 1
(C) 0
(D) -5

Answer: (C) 0 · The council's preliminary key

Q139 AP EAPCET 2025 · 22 May · Shift 1 MCQ

If the angle between the lines joining the origin to the points of intersection of $x + 2y + \lambda = 0$ and $2x^2 - 2xy + 3y^2 + 2x - y - 1 = 0$ is $\frac{\pi}{2}$, then a value of λ is

(A) 1
(B) $\frac{1}{2}$
(C) 2
(D) $\frac{3}{2}$

Answer: (A) 1 · The council's preliminary key

Q140 AP EAPCET 2025 · 22 May · Shift 2 MCQ

If A $(1, 0)$, B$(0, -2)$, C$(2, -1)$ are three fixed points, then the equation of the locus of a point P such that area of ΔPAB is equal to area of ΔPAC is

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(A) $x^2 - 2xy - 2y^2 + 2x - 2y + 1 = 0$
(B) $x^2 - 2xy + 2y^2 - 2x + 2y + 1 = 0$
(C) $x^2 - 2xy - 2x + 2y + 1 = 0$
(D) $x^2 - 2xy + 2x - 2y + 1 = 0$

Answer: (C) $x^2 - 2xy - 2x + 2y + 1 = 0$ · The council's preliminary key

Q141 AP EAPCET 2025 · 22 May · Shift 2 MCQ

The transformed equation of $3x^2 - 4xy = r^2$ when the coordinate axes are rotated about the origin through an angle of $\mathrm{Tan}^{-1}(2)$ in positive direction is

(A) $x^2 - 4y^2 = r^2$
(B) $2xy + r^2 = 0$
(C) $4y^2 - x^2 = r^2$
(D) $xy = r^2$

Answer: (C) $4y^2 - x^2 = r^2$ · The council's preliminary key

Q142 AP EAPCET 2025 · 22 May · Shift 2 MCQ

A line L_1 passing through the point of intersection of the lines $x - 2y + 3 = 0$ and $2x - y = 0$ is parallel to the Line L_2. If L_2 passes through origin and also through the point of intersection of the lines $3x - y + 2 = 0$ and $x - 3y - 2 = 0$, then the distance between the lines L_1 and L_2 is

(A) $\frac{1}{\sqrt{2}}$
(B) $\sqrt{2}$
(C) $\sqrt{5}$
(D) $\frac{1}{\sqrt{5}}$

Answer: (A) $\frac{1}{\sqrt{2}}$ · The council's preliminary key

Q143 AP EAPCET 2025 · 22 May · Shift 2 MCQ

If the lines $x + y - 2 = 0$, $3x - 4y + 1 = 0$ and $5x + ky - 7 = 0$ are concurrent at (α, β), then equation of the line concurrent with the given lines and perpendicular to $kx + y - k = 0$ is

(A) $x - 3y = -2$
(B) $x + 4y = 5$
(C) $x + 6y = 7$
(D) $x - 2y = -1$

Answer: (D) $x - 2y = -1$ · The council's preliminary key

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Q144 AP EAPCET 2025 · 22 May · Shift 2 MCQ

If two sides of a triangle are represented by $3x^2 - 5xy + 2y^2 = 0$ and its orthocentre is $(2, 1)$, then the equation of the third side is

(A) $2x + y - 4 = 0$
(B) $6x + 3y - 13 = 0$
(C) $8x + 4y - 17 = 0$
(D) $10x + 5y - 21 = 0$

Answer: (D) $10x + 5y - 21 = 0$ · The council's preliminary key

Q145 AP EAPCET 2025 · 22 May · Shift 2 MCQ

If $ax^2 + 2hxy - 2ay^2 + 3x + 15y - 9 = 0$ represents a pair of lines intersecting at $(1, 1)$, then $ah =$

(A) 14
(B) -15
(C) -7
(D) 9

Answer: (C) -7 · The council's preliminary key

Q146 AP EAPCET 2025 · 21 May · Shift 1 MCQ

If the distance of a variable point P from a point A $(2, -2)$ is twice the distance of P from Y-axis, then the equation of locus of P is

(A) $3x^2 - y^2 + 4x - 4y - 8 = 0$
(B) $x^2 - 4x + 4y + 8 = 0$
(C) $3x^2 - y^2 + 4x - 4y + 8 = 0$
(D) $y^2 - 4x + 4y + 8 = 0$

Answer: (A) $3x^2 - y^2 + 4x - 4y - 8 = 0$ · The council's preliminary key

Q147 AP EAPCET 2025 · 21 May · Shift 1 MCQ

If the transformed equation of the equation $2x^2 + 3xy - 2y^2 - 17x + 6y + 8 = 0$ after translating the coordinate axes to a new origin (α, β) is $aX^2 + 2hXY + bY^2 + c = 0$, then $3\alpha + c =$

(A) h
(B) $2h$
(C) 2β
(D) β

Answer: (C) 2β · The council's preliminary key

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Q148 AP EAPCET 2025 · 21 May · Shift 1 MCQ

P(6, 4) is a point on the line $x - y - 2 = 0$. If $A(\alpha, \beta)$ and $B(\gamma, \delta)$ are two points on this line lying on either side of P at a distance of 4 units from P, then $\alpha^2 + \beta^2 + \gamma^2 + \delta^2 =$

(A) 136
(B) $\frac{85}{\sqrt{2}}$
(C) $23 + \frac{5}{\sqrt{2}}$
(D) 52

Answer: (A) 136 · The council's preliminary key

Q149 AP EAPCET 2025 · 21 May · Shift 1 MCQ

If the straight line $2x + 3y + 1 = 0$ bisects the angle between two other straight lines one of which is $3x + 2y + 4 = 0$, then the equation of the other straight line is

(A) $3x + 16y - 7 = 0$
(B) $9x + 46y - 28 = 0$
(C) $9x - 23y - 26 = 0$
(D) $18x - 23y + 15 = 0$

Answer: (B) $9x + 46y - 28 = 0$ · The council's preliminary key

Q150 AP EAPCET 2025 · 21 May · Shift 1 MCQ

If the slopes of both the lines given by $x^2 + 2hxy + 6y^2 = 0$ are positive and the angle between these lines is $\mathrm{Tan}^{-1}\left(\frac{1}{7}\right)$, then the product of the perpendiculars drawn from the point $(1, 0)$ to the given pair of lines is

(A) $\frac{1}{6}$
(B) $\frac{1}{5\sqrt{2}}$
(C) $\frac{5}{6}$
(D) $\frac{1}{3\sqrt{2}}$

Answer: (B) $\frac{1}{5\sqrt{2}}$ · The council's preliminary key

Q151 AP EAPCET 2025 · 21 May · Shift 1 MCQ

If one of the lines represented by $ax^2 + 2hxy + by^2 = 0$ bisects the angle between the positive coordinate axes, then

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(A) $a+b=2h$

(B) $a-b=2h$

(C) $a+2h+b=0$

(D) $a+2h-b=0$

Answer: (C) $a+2h+b=0$ · The council's preliminary key

Q152 AP EAPCET 2025 · 21 May · Shift 2 MCQ

If P is a variable point which is at a distance of 2 units from the line $2x-3y+1=0$ and $\sqrt{13}$ units from the point $(5,6)$, then the equation of the locus of P is

(A) $4x^2+12xy-5y^2-44x-42y+245=0$

(B) $12xy-5y^2-44x-42y+243=0$

(C) $8x^2+12xy-5y^2-44x-42y+243=0$

(D) $12xy-13y^2-44x-42y+245=0$

Answer: (B) $12xy-5y^2-44x-42y+243=0$ · The council's preliminary key

Q153 AP EAPCET 2025 · 21 May · Shift 2 MCQ

If the equation $3x^2+4y^2-xy+k=0$ is the transformed equation of $3x^2+4y^2-xy-5x-7y+2=0$ after shifting the origin to the point (α,β) by the translation of axes, then $\alpha+\beta-k=$

(A) -2

(B) 6

(C) 3

(D) -1

Answer: (B) 6 · The council's preliminary key

Q154 AP EAPCET 2025 · 21 May · Shift 2 MCQ

If the intercept of a straight line L made between the straight lines $5x-y-4=0$ and $3x+4y-4=0$ is bisected at the point $(1,5)$, then the equation of L is

(A) $35x-83y+92=0$

(B) $83x+35y-72=0$

(C) $63x-35y+82=0$

(D) $83x-35y+92=0$

Answer: (D) $83x-35y+92=0$ · The council's preliminary key

Q155 AP EAPCET 2025 · 21 May · Shift 2 MCQ

A line L passes through the point P(1,2) and makes an angle of 60° with $\overrightarrow{OX}$ in the positive direction. A and B are two points lying on L at a distance of 4 units from P. If O is the origin, then the area of ΔOAB is

(A) $4-2\sqrt{3}$
(B) $8-4\sqrt{3}$
(C) $4+2\sqrt{3}$
(D) $8+4\sqrt{3}$

Answer: (A) $4-2\sqrt{3}$ · The council's preliminary key

Q156 AP EAPCET 2025 · 21 May · Shift 2 MCQ

The equation $(2p-3)x^2+2pxy-y^2=0$ represents a pair of distinct lines

(A) Only when $p=0$
(B) For all values of $p \in R-[-3,1]$
(C) For all values of $p \in (-3,1)$
(D) For all values of $p \in R$

Answer: (B) For all values of $p \in R-[-3,1]$ · The council's preliminary key

Q157 AP EAPCET 2025 · 21 May · Shift 2 MCQ

The equation of a chord AB of an ellipse $2x^2+y^2=1$ is $x-y+1=0$. If O is the origin, then $|\underline{AOB} =$

(A) $\frac{\pi}{4}$
(B) $\mathrm{Tan}^{-1}2$
(C) $\mathrm{Tan}^{-1}\left(\frac{1}{2}\right)$
(D) $\frac{\pi}{6}$

Answer: (B) $\mathrm{Tan}^{-1}2$ · The council's preliminary key

Q158 TS EAPCET 2025 · 4 May · Shift 1 MCQ

If $A=(0,1)$, $B=(1,2)$, $C=(-2,1)$ then the equation of the locus of a point P such that area of triangle PAB = area of triangle PAC is

(A) $x^2-2xy-3y^2+2x+6y-3=0$
(B) $x^2+2xy-3y^2+2x+6y-4=0$
(C) $x^2-2xy-3y^2+2x-6y+4=0$
(D) $x^2-2xy+3y^2-2x+6y-3=0$

Answer: (A) $x^2-2xy-3y^2+2x+6y-3=0$ · The council's preliminary key

Q159 TS EAPCET 2025 · 4 May · Shift 1 MCQ

(a,b) are the new coordinates of the point $(2,3)$ after shifting the origin to the point $(3,2)$ by translation of axes. If (c,d) are the new coordinates of the point (a,b) after rotating the axes through an angle $\frac{\pi}{4}$ about the origin in the anti-clockwise direction, then $d-c=$

(A) 0
(B) 1
(C) $\sqrt{2}$
(D) $2\sqrt{2}$

Answer: (C) $\sqrt{2}$ · The council's preliminary key

Q160 TS EAPCET 2025 · 4 May · Shift 1 MCQ

The lines $x+y+4=0$, $x-2y-4=0$ and $3x+4y-2=0$

(A) are concurrent
(B) form an isosceles triangle
(C) form a right-angled triangle
(D) form a scalene triangle

Answer: (D) form a scalene triangle · The council's preliminary key

Q161 TS EAPCET 2025 · 4 May · Shift 1 MCQ

The area of the triangle formed by the line L with the coordinate axes is 12 sq. units. If L passes through the point $(12,4)$ and the product P of X-intercept of L and square of the Y-intercept of L is negative, then $P=$

(A) -48
(B) -24
(C) -192
(D) -72

Answer: (A) -48 · The council's preliminary key

Q162 TS EAPCET 2025 · 4 May · Shift 1 MCQ

The area of the quadrilateral formed by the lines $x+2y+3=0$, $2x+4y+9=0$, $x-2y+3=0$ and $3x-6y+11=0$ is

(A) $\frac{5}{12}$
(B) $\frac{1}{4}$
(C) $\frac{3}{4}$
(D) $\frac{7}{12}$

Answer: (B) $\frac{1}{4}$ · The council's preliminary key

Q163 TS EAPCET 2025 · 4 May · Shift 1 MCQ

If $(-1,-1)$ is the point of intersection of the pair of lines $2x^2+5xy-3y^2+2gx+2fy+c=0$ then $g+f=$

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(A) $4c$
(B) $3c$
(C) $2c$
(D) c

Answer: (D) c · The council's preliminary key

Q164 TS EAPCET 2025 · 4 May · Shift 2 MCQ

$A(2,0),\ B(0,2),\ C(-2,0)$ are three points. Let a, b, c be the perpendicular distances from a variable point P on to the lines AB, BC and CA respectively. If a, b, c are in arithmetic progression, then the locus of P is

(A) $|\sqrt{2}y| = 2|x-y+2| - |x+y-2|$
(B) $\sqrt{2}|y| = |x-y+2| - |x+y-2|$
(C) $2|x-y+2| = \left|\frac{x+y-2}{\sqrt{2}}\right| + \left|\frac{x-y-2}{\sqrt{2}}\right|$
(D) $2|x-y+2| = |x+(\sqrt{2}+1)y+2|$

Answer: (A) $|\sqrt{2}y| = 2|x-y+2| - |x+y-2|$ · The council's preliminary key

Q165 TS EAPCET 2025 · 4 May · Shift 2 MCQ

When the coordinate axes are rotated about the origin through an angle $\frac{\pi}{4}$ in the positive direction, the equation $ax^2+2hxy+by^2=c$ is transformed to $25x^2+9y^2=225$, then $(a+2h+b-\sqrt{c})^2 =$

(A) 3
(B) 1225
(C) 9
(D) 225

Answer: (B) 1225 · The council's preliminary key

Q166 TS EAPCET 2025 · 4 May · Shift 2 MCQ

$y-x=0$ is the equation of a side of a triangle ABC. The orthocentre and circumcentre of the triangle ABC are respectively $(5,8)$ and $(2,3)$. The reflection of orthocentre with respect to any side of the triangle lies on its circumcircle. Then the radius of the circumcircle of the triangle is

(A) 5
(B) $2\sqrt{5}$
(C) $\sqrt{10}$
(D) $2\sqrt{10}$

Answer: (D) $2\sqrt{10}$ · The council's preliminary key

Q167 TS EAPCET 2025 · 4 May · Shift 2 MCQ

Two families of lines are given by $ax + by + c = 0$ and $4a^2 + 9b^2 - c^2 - 12ab = 0$. Then the line common to both the families is

(A) a line passing through $(-1, 2)$ and $(2, 3)$
(B) a line passing through $(3, 2)$ and $(2, 3)$
(C) a line passing through $(-3, -2)$ and $(-2, -3)$
(D) a line passing through $(2, -3)$ and $(-2, 3)$

Answer: (D) a line passing through $(2, -3)$ and $(-2, 3)$ · The council's preliminary key

Q168 TS EAPCET 2025 · 4 May · Shift 2 MCQ

Two non parallel sides of a rhombus are parallel to the lines $x + y - 1 = 0$ and $7x - y - 5 = 0$. If $(1, 3)$ is the centre of the rhombus and one of its vertices $A(\alpha, \beta)$ lies on $15x - 5y = 6$, then one of the possible values of $(\alpha + \beta)$ is

(A) $\frac{18}{5}$
(B) $\frac{12}{5}$
(C) $\frac{37}{5}$
(D) $\frac{39}{5}$

Answer: (A) $\frac{18}{5}$ · The council's preliminary key

Q169 TS EAPCET 2025 · 4 May · Shift 2 MCQ

If the equations $3x^2 + 2hxy - 3y^2 = 0$ and $3x^2 + 2hxy - 3y^2 + 2x - 4y + c = 0$ represent the four sides of a square, then $\frac{h}{c} =$

(A) $\frac{1}{4}$
(B) $\frac{-2}{3}$
(C) -3
(D) -4

Answer: (D) -4 · The council's preliminary key

Q170 TS EAPCET 2025 · 3 May · Shift 1 MCQ

The equation of the locus of a point which is at a distance of 5 units from a fixed point $(1, 4)$ and also from a fixed line $2x + 3y - 1 = 0$ is

(A) $9x^2 + 12xy + 4y^2 - 30x - 108y + 222 = 0$
(B) $9x^2 - 12xy + 4y^2 - 30x - 98y + 220 = 0$
(C) $9x^2 + 12xy + 4y^2 - 22x - 108y + 222 = 0$
(D) $9x^2 - 12xy + 4y^2 - 22x - 98y + 220 = 0$

Answer: (D) $9x^2 - 12xy + 4y^2 - 22x - 98y + 220 = 0$ · The council's preliminary key

Q171 TS EAPCET 2025 · 3 May · Shift 1 MCQ

If $2x^2 + xy - 6y^2 + \mathrm{k} = 0$ is the transformed equation of $2x^2 + xy - 6y^2 - 13x + 9y + 15 = 0$ when the origin is shifted to the point (a, b) by translation of axes, then $\mathrm{k} =$

(A) 1
(B) 0
(C) 21
(D) 15

Answer: (B) 0 · The council's preliminary key

Q172 TS EAPCET 2025 · 3 May · Shift 1 MCQ

The line $L \equiv 6x + 3y + k = 0$ divides the line segment joining the points $(3, 5)$ and $(4, 6)$ in the ratio $-5 : 4$. If the point of intersection of the lines $L = 0$ and $x - y + 1 = 0$ is $P(g, h)$ then $h =$

(A) $2g$
(B) $2g - 1$
(C) $3g$
(D) $g + 1$

Answer: (D) $g + 1$ · The council's preliminary key

Q173 TS EAPCET 2025 · 3 May · Shift 1 MCQ

A straight line through the point $\mathrm{P}(1, 2)$ makes an angle θ with positive X-axis in anti-clockwise direction and meets the line $x + \sqrt{3}y - 2\sqrt{3} = 0$ at Q. If $\mathrm{PQ} = \frac{1}{2}$, then $\theta =$

(A) $\frac{\pi}{6}$
(B) $\frac{5\pi}{6}$
(C) $\frac{2\pi}{3}$
(D) $\frac{\pi}{3}$

Answer: (D) $\frac{\pi}{3}$ · The council's preliminary key

Q174 TS EAPCET 2025 · 3 May · Shift 1 MCQ

The lines $x - 2y + 1 = 0$, $2x - 3y - 1 = 0$ and $3x - y + k = 0$ are concurrent. The angle between the lines $3x - y + k = 0$ and $mx - 3y + 6 = 0$ is 45°. If m is an integer, then $m - k =$

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(A) -6
(B) 18
(C) 6
(D) -18

Answer: (C) 6 · The council's preliminary key

Q175 TS EAPCET 2025 · 3 May · Shift 1 MCQ

If $\mathrm{Tan}^{-1}(2\sqrt{10})$ is the angle between the lines $ax^2+4xy-2y^2=0$ and $a \in Z$, then the product of the slopes of given lines is

(A) $\frac{3}{2}$
(B) $\frac{2}{3}$
(C) $-\frac{2}{3}$
(D) $-\frac{3}{2}$

Answer: (D) $-\frac{3}{2}$ · The council's preliminary key

Q176 TS EAPCET 2025 · 3 May · Shift 2 MCQ

A straight line passing through a point $(3,2)$ cuts X and Y-axes at the points A and B respectively. If a point P divides AB in the ratio $2:3$, then the equation of the locus of point P is

(A) $\frac{9}{x}+\frac{4}{y}=1$
(B) $9x+4y=5xy$
(C) $4x+9y=5xy$
(D) $\frac{4}{x}+\frac{9}{y}=1$

Answer: (C) $4x+9y=5xy$ · The council's preliminary key

Q177 TS EAPCET 2025 · 3 May · Shift 2 MCQ

By shifting the origin to the point $(-1,2)$ through translation of axes, if $ax^2+2hxy+by^2+2gx+2fy+c=0$ is the transformed equation of $2x^2-xy+y^2-3x+4y-5=0$, then $2(f+g+h)=$

(A) $a+b+c$
(B) $a-5(b+c)$
(C) $3(a+b+c)$
(D) $c-5(a+b)$

Answer: (D) $c-5(a+b)$ · The council's preliminary key

Q178 TS EAPCET 2025 · 3 May · Shift 2 MCQ

If a line L passing through the point $A(-2,4)$ makes an angle of 60° with the positive direction of X-axis in anti-clockwise direction and $B(p,q)$ lying in the 3rd quadrant is a point on L at the distance of 6 units from the point A, then $\sqrt{p^2+q^2-8q}=$

(A) 6
(B) 7
(C) 8
(D) 9

Answer: (A) 6 · The council's preliminary key

Q179 TS EAPCET 2025 · 3 May · Shift 2 MCQ

If the perpendicular drawn from the point $(2, -3)$ to the straight line $4x - 3y + 8 = 0$ meets it at $\mathrm{M}(a, b)$ and $a^3 - b^3 = \mathrm{k}^3$, then $\mathrm{k} =$

(A) 1
(B) -1
(C) 2
(D) -2

Answer: (D) -2 · The council's preliminary key

Q180 TS EAPCET 2025 · 3 May · Shift 2 MCQ

Let Q be the image of a point P(1,2) with respect to the line $x + y + 1 = 0$ and R be the image of Q with respect to the line $x - y - 1 = 0$. If M and N are the midpoints of PQ and QR respectively, then MN =

(A) $\sqrt{10}$
(B) 4
(C) $\sqrt{22}$
(D) 5

Answer: (A) $\sqrt{10}$ · The council's preliminary key

Q181 TS EAPCET 2025 · 3 May · Shift 2 MCQ

If the slopes of the lines represented by the equation $6x^2 + 2hxy + 4y^2 = 0$ are in the ratio $2 : 3$, then the value of h such that both the lines make acute angles with the positive X-axis measured in positive direction is

(A) 5
(B) $\frac{5}{2}$
(C) -5
(D) $-\frac{5}{2}$

Answer: (C) -5 · The council's preliminary key

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Q182 TS EAPCET 2025 · 2 May · Shift 1 MCQ

If the points $A(2,3)$, $B(3,2)$ form a triangle with a variable point $p(t,t^2)$, where t is a parameter, then the equation of the locus of the centroid of triangle ABC is

(A) $9x^2-30x-3y+20=0$
(B) $3x^2-10x-y+10=0$
(C) $9y^2-30y-3x+20=0$
(D) $3y^2-10y-x+10=0$

Answer: (B) $3x^2-10x-y+10=0$ · The council's preliminary key

Q183 TS EAPCET 2025 · 2 May · Shift 1 MCQ

If (h,k) is the new origin to be chosen to eliminate first degree terms from the equation $S\equiv 2x^2-xy-y^2-3x+3y=0$ by translation and if θ is the angle with which the axes are to be rotated about the origin in anticlockwise direction to eliminate xy-term from $S=0$, then $\tan 2\theta=$

(A) $h+k$
(B) $h-k$
(C) hk
(D) $-\frac{h}{3k}$

Answer: (D) $-\frac{h}{3k}$ · The council's preliminary key

Q184 TS EAPCET 2025 · 2 May · Shift 1 MCQ

A line L perpendicular to the line $5x-12y+6=0$ makes positive intercept on the Y-axis. If the distance from the origin to the line L is 2 units and the angle made by the perpendicular drawn from the origin to the line L with positive X-axis is θ, then $\tan\theta+\cot\theta=$

(A) $\frac{25}{12}$
(B) $\frac{625}{168}$
(C) $\frac{169}{60}$
(D) $\frac{1681}{360}$

Answer: (C) $\frac{169}{60}$ · The council's preliminary key

Q185 TS EAPCET 2025 · 2 May · Shift 1 MCQ

If a line L passing through a point A(2,3) intersects another line $4x-3y-19=0$ at the point B such that $AB=4$, then the angle made by the line L with positive X-axis in anti-clockwise direction is

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(A) $\mathrm{Tan}^{-1}\left(-\frac{3}{4}\right)$
(B) $\mathrm{Tan}^{-1}\left(\frac{3}{4}\right)$
(C) $\frac{\pi}{4}$
(D) $-\frac{\pi}{4}$

Answer: (A) $\mathrm{Tan}^{-1}\left(-\frac{3}{4}\right)$ · The council's preliminary key

Q186 TS EAPCET 2025 · 2 May · Shift 1 MCQ

If $4x^2+12xy+9y^2+2gx+2fy-1=0$ represent a pair of parallel lines then

(A) $\frac{f}{g}+\frac{g}{f}+\frac{13}{6}=0$
(B) $f^2+g^2=fg$
(C) $f^2+g^2=6fg$
(D) $\frac{f}{g}+\frac{g}{f}=\frac{13}{6}$

Answer: (D) $\frac{f}{g}+\frac{g}{f}=\frac{13}{6}$ · The council's preliminary key

Q187 TS EAPCET 2025 · 2 May · Shift 2 MCQ

A line segment joining a point A on x-axis to a point B on y-axis is such that $\mathrm{AB}=15$. If P is a point on AB such that $\frac{\mathrm{AP}}{\mathrm{PB}}=\frac{2}{3}$ then the locus of P is

(A) $x=9\cos\theta,\ y=6\sin\theta$
(B) $x=6\cos\theta,\ y=9\sin\theta$
(C) $x=6\cos\theta,\ y=6\sin\theta$
(D) $x=9\cos\theta,\ y=9\sin\theta$

Answer: (A) $x=9\cos\theta,\ y=6\sin\theta$ · The council's preliminary key

Q188 TS EAPCET 2025 · 2 May · Shift 2 MCQ

The point $P(\alpha,\beta)$ $(\alpha>0,\beta>0)$ undergoes the following transformations successively.

a) Translation to a distance of 3 units in positive direction of x-axis.

b) Reflection about the line $y=-x$.

c) Rotation of axes through an angle of $\frac{\pi}{4}$ about the origin in the positive direction.

If the final position of that point P is $\left(-4\sqrt{2},-2\sqrt{2}\right)$, then $(\alpha+\beta)=$

(A) 5
(B) 7
(C) $6\sqrt{2}$
(D) $2\sqrt{2}$

Answer: (A) 5 · The council's preliminary key

Q189 TS EAPCET 2025 · 2 May · Shift 2 MCQ

If the line passing through the point $(4, -3)$ and having negative slope makes an angle of 45° with the line joining the points $(1, 1)$, $(2, 3)$ then the sum of intercepts of that line is

(A) $\frac{7}{3}$
(B) 1
(C) 12
(D) $\frac{26}{3}$

Answer: (C) 12 · The council's preliminary key

Q190 TS EAPCET 2025 · 2 May · Shift 2 MCQ

$O(0,0)$, $B(-3,-1)$, $C(-1,-3)$ are vertices of a triangle OBC. D is a point on OC and E is a point on OB. If the equation of DE is $2x + 2y + \sqrt{2} = 0$, then the ratio in which the line DE divides the altitude of the triangle OBC is

(A) $\sqrt{2} : 4\sqrt{2} + 2$
(B) $1 : 4\sqrt{2} + 1$
(C) $\sqrt{2} : 4\sqrt{2} - 2$
(D) $1 : 4\sqrt{2} - 1$

Answer: (D) $1 : 4\sqrt{2} - 1$ · The council's preliminary key

Q191 TS EAPCET 2025 · 2 May · Shift 2 MCQ

Every point on the curve $3x + 2y - 3xy = 0$ is the centroid of a triangle formed by the coordinate axes and a line (L) intersecting both the coordinate axes. Then all such lines (L)

(A) are parallel
(B) are concurrent
(C) intersect each other at different points
(D) are perpendicular to the tangents to the curve

Answer: (B) are concurrent · The council's preliminary key

Q192 TS EAPCET 2025 · 2 May · Shift 2 MCQ

The value of 'a' for which the equation $(a^2 - 3)x^2 + 16xy - 2ay^2 + 4x - 8y - 2 = 0$ represents a pair of perpendicular lines is

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(A) 2
(B) -1
(C) 3
(D) 4

Answer: (C) 3 · The council's preliminary key

Q193 AP EAPCET 2024 · 23 May · Shift 1 MCQ

The locus of the midpoint of the portion of the line $x\cos\alpha + y\sin\alpha = p$ intercepted by the coordinate axes, where p is a constant, is

(A) $\frac{1}{x^2} + \frac{1}{y^2} = \frac{3}{p^2}$
(B) $\frac{1}{x^2} + \frac{1}{y^2} = \frac{4}{p^2}$
(C) $x^2 + y^2 = 2p^2$
(D) $\frac{2}{x^2} + \frac{2}{y^2} = \frac{1}{p^2}$

Answer: (B) $\frac{1}{x^2} + \frac{1}{y^2} = \frac{4}{p^2}$ · The council's preliminary key

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Q194 AP EAPCET 2024 · 23 May · Shift 1 MCQ

The origin is shifted to the point $(2, 3)$ by translation of axes and then the coordinate axes are rotated about the origin through an angle θ in the counter-clockwise sense. Due to this if the equation $3x^2 + 2xy + 3y^2 - 18x - 22y + 50 = 0$ is transformed to $4x^2 + 2y^2 - 1 = 0$, then the angle $\theta =$

(A) $\frac{\pi}{4}$
(B) $\frac{\pi}{3}$
(C) $\frac{\pi}{6}$
(D) $\frac{\pi}{2}$

Answer: (A) $\frac{\pi}{4}$ · The council's preliminary key

Q195 AP EAPCET 2024 · 23 May · Shift 1 MCQ

If the straight line passing through P (3, 4) makes an angle $\frac{\pi}{6}$ with the positive x-axis in anticlockwise direction and meets the line $12x + 5y + 10 = 0$ at Q, then the length of the segment PQ is

(A) $\frac{64}{12\sqrt{2}+1}$
(B) $\frac{96}{9\sqrt{2}-1}$
(C) $\frac{112}{10\sqrt{3}+3}$
(D) $\frac{132}{12\sqrt{3}+5}$

Answer: (D) $\frac{132}{12\sqrt{3}+5}$ · The council's preliminary key

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Q196 AP EAPCET 2024 · 23 May · Shift 1 MCQ

The equations of the perpendicular bisectors of the sides AB and AC of Δ ABC are $x - y + 5 = 0$ and $x + 2y = 0$ respectively. If the coordinates of A are $(1, -2)$, then the equation of the line BC is

(A) $14x + 23y - 40 = 0$
(B) $13x - 9y - 14 = 0$
(C) $9x - 14y - 25 = 0$
(D) $8x + 15y - 30 = 0$

Answer: (A) $14x + 23y - 40 = 0$ · The council's preliminary key

Q197 AP EAPCET 2024 · 23 May · Shift 1 MCQ

A pair of lines drawn through the origin forms a right angled isosceles triangle with right angle at the origin with the line $2x + 3y = 6$. The area (in sq. units) of the triangle thus formed is

(A) $\frac{36}{13}$
(B) $\frac{32}{13}$
(C) $\frac{18}{5}$
(D) $\frac{25}{9}$

Answer: (A) $\frac{36}{13}$ · The council's preliminary key

Q198 AP EAPCET 2024 · 23 May · Shift 1 MCQ

The combined equation of the bisectors of the angles between the lines joining the origin to the points of intersection of the curve $x^2 + y^2 + xy + x + 3y + 1 = 0$ and the line $x + y + 2 = 0$ is

(A) $x^2 + 4xy - y^2 = 0$
(B) $x^2 - 4xy + y^2 = 0$
(C) $2x^2 - 3xy + y^2 = 0$
(D) $x^2 + 2xy - 3y^2 = 0$

Answer: (A) $x^2 + 4xy - y^2 = 0$ · The council's preliminary key

Q199 AP EAPCET 2024 · 22 May · Shift 1 MCQ

The equation of the locus of points which are equidistant from the points $(2, 3)$ and $(4, 5)$ is

(A) $x + y = 0$
(B) $x + y = 7$
(C) $4x + 4y = 38$
(D) $x + y = 1$

Answer: (B) $x + y = 7$ · The council's preliminary key

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Q200 AP EAPCET 2024 · 22 May · Shift 1 MCQ

The transformed equation of $x^2 - y^2 + 2x + 4y = 0$ when the origin is shifted to the point $(-1, 2)$ is

(A) $x^2 + y^2 = 1$
(B) $x^2 + 3y^2 = 1$
(C) $x^2 - y^2 + 3 = 0$
(D) $4x^2 + 9y^2 = 36$

Answer: (C) $x^2 - y^2 + 3 = 0$ · The council's preliminary key

Q201 AP EAPCET 2024 · 22 May · Shift 1 MCQ

The equation of the side of an equilateral triangle is $x + y = 2$ and one vertex is $(2, -1)$. The length of the side is

(A) $\frac{\sqrt{2}}{\sqrt{3}}$
(B) $\frac{1}{2\sqrt{3}}$
(C) $\frac{\sqrt{3}}{\sqrt{2}}$
(D) $\frac{2}{\sqrt{3}}$

Answer: (A) $\frac{\sqrt{2}}{\sqrt{3}}$ · The council's preliminary key

Q202 AP EAPCET 2024 · 22 May · Shift 1 MCQ

The orthocentre of the triangle formed by lines $x + y + 1 = 0$; $x - y - 1 = 0$ and $3x + 4y + 5 = 0$ is

(A) $(0, -1)$
(B) $(0, 0)$
(C) $(1, 1)$
(D) $(-1, 0)$

Answer: (A) $(0, -1)$ · The council's preliminary key

Q203 AP EAPCET 2024 · 22 May · Shift 1 MCQ

If the slope of one of the pair of lines represented by $2x^2 + 3xy + Ky^2 = 0$ is 2, then the angle between the pair of lines is

(A) $\frac{\pi}{2}$
(B) $\frac{\pi}{3}$
(C) $\frac{\pi}{6}$
(D) $\frac{\pi}{4}$

Answer: (A) $\frac{\pi}{2}$ · The council's preliminary key

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Q204 AP EAPCET 2024 · 22 May · Shift 1 MCQ

The length of x-intercept made by pair of lines $2x^2 + xy - 6y^2 - 2x + 17y - 12 = 0$ is

(A) 2
(B) 10
(C) 5
(D) 20

Answer: (C) 5 · The council's preliminary key

Q205 AP EAPCET 2024 · 22 May · Shift 2 MCQ

The locus of a variable point which forms a triangle of fixed area with two fixed points is

(A) a circle
(B) a circle with fixed points as ends of a diameter
(C) a pair of non parallel lines
(D) a pair of parallel lines

Answer: (D) a pair of parallel lines · The council's preliminary key

Q206 AP EAPCET 2024 · 22 May · Shift 2 MCQ

If the axes are rotated through an angle 'α', then the number of values of α such that the transformed equation of $x^2 + y^2 + 2x + 2y - 5 = 0$ contains no linear terms is

(A) 0
(B) 1
(C) 2
(D) Infinite

Answer: (A) 0 · The council's preliminary key

Q207 AP EAPCET 2024 · 22 May · Shift 2 MCQ

A line L passing through the point $P(-5, -4)$ cuts the lines $x - y - 5 = 0$ and $x + 3y + 2 = 0$ respectively at Q and R such that $\frac{18}{PQ} + \frac{15}{PR} = 2$, then slope of the line L is

(A) ± 1
(B) $\pm\frac{1}{\sqrt{3}}$
(C) $\pm\sqrt{3}$
(D) $\pm\frac{2}{\sqrt{3}}$

Answer: (C) $\pm\sqrt{3}$ · The council's preliminary key

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Q208 AP EAPCET 2024 · 22 May · Shift 2 MCQ

If the reflection of a point A(2,3) in X-axis is B; reflection of B in the line $x+y=0$ is C and the reflection of C in $x-y=0$ is D then the point of intersection of the lines CD, AB is

(A) $(3,-2)$
(B) $(0,1)$
(C) $(4,-3)$
(D) $(2,-1)$

Answer: (D) $(2,-1)$ · The council's preliminary key

Q209 AP EAPCET 2024 · 22 May · Shift 2 MCQ

The equation of a line which makes an angle of 45° with each of the pair of lines $xy-x-y+1=0$ is

(A) $x-y=5$
(B) $2x+y=3$
(C) $x+7y=8$
(D) $3x-y=2$

Answer: (A) $x-y=5$ · The council's preliminary key

Q210 AP EAPCET 2024 · 22 May · Shift 2 MCQ

If the slope of one of the lines in the pair of lines $8x^2+axy+y^2=0$ is thrice the slope of the second line, then $a=$

(A) $8\sqrt{\frac{2}{3}}$
(B) 6
(C) $16\sqrt{2}$
(D) $3\frac{\sqrt{2}}{5}$

Answer: (A) $8\sqrt{\frac{2}{3}}$ · The council's preliminary key

Q211 AP EAPCET 2024 · 21 May · Shift 1 MCQ

P is a variable point such that the distance of P from A $(4,0)$ is twice the distance of P from B $(-4,0)$. If the line $3y-3x-20=0$ intersects the locus of P at the points C and D, then the distance between C and D is

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(A) 8
(B) $\frac{8\sqrt{2}}{3}$
(C) $\frac{32}{3}$
(D) $\frac{8}{3}$

Answer: (C) $\frac{32}{3}$ · The council's preliminary key

Q212 AP EAPCET 2024 · 21 May · Shift 1 MCQ

When the origin is shifted to (h, k) by translation of axes, the transformed equation of $x^2 + 2x + 2y - 7 = 0$ does not contain x term and constant term. Then $(2h + k) =$

(A) $\frac{7}{2}$
(B) $\frac{1}{2}$
(C) 2
(D) 0

Answer: (C) 2 · The council's preliminary key

Q213 AP EAPCET 2024 · 21 May · Shift 1 MCQ

Let $\alpha \in \mathbb{R}$. If the line $(\alpha + 1)x + \alpha y + \alpha = 1$ passes through a fixed point (h, k) for all α, then $h^2 + k^2 =$

(A) 2
(B) 5
(C) 4
(D) $\frac{1}{4}$

Answer: (B) 5 · The council's preliminary key

Q214 AP EAPCET 2024 · 21 May · Shift 1 MCQ

If (α, β) is the orthocentre of the triangle with the vertices $(2, 2), (5, 1), (4, 4)$, then $\alpha + \beta =$

(A) 6
(B) 5
(C) $\frac{5}{2}$
(D) $\frac{7}{2}$

Answer: (A) 6 · The council's preliminary key

Q215 AP EAPCET 2024 · 21 May · Shift 1 MCQ

The area of the triangle formed by the lines represented by $3x + y + 15 = 0$ and $3x^2 + 12xy - 13y^2 = 0$ is

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(A) $\frac{15\sqrt{3}}{2}$
(B) $15\sqrt{3}$
(C) $\frac{15\sqrt{3}}{4}$
(D) $\frac{15}{\sqrt{3}}$

Answer: (A) $\frac{15\sqrt{3}}{2}$ · The council's preliminary key

Q216 AP EAPCET 2024 · 21 May · Shift 1 MCQ

If all chords of the curve $2x^2 - y^2 + 3x + 2y = 0$, which subtend a right angle at the origin, always passing through the point (α, β), then $(\alpha, \beta) =$

(A) $(-3, -2)$
(B) $(3, 2)$
(C) $(3, -2)$
(D) $(-3, 2)$

Answer: (A) $(-3, -2)$ · The council's preliminary key

Q217 AP EAPCET 2024 · 21 May · Shift 2 MCQ

The perimeter of the locus of the point P which divides the line segment $\overline{QA}$ internally in the ratio 1:2, where $A = (4, 4)$ and Q lies on the circle $x^2 + y^2 = 9$, is

(A) 8π
(B) 4π
(C) π
(D) 9π

Answer: (B) 4π · The council's preliminary key

Q218 AP EAPCET 2024 · 21 May · Shift 2 MCQ

Suppose the axes are to be rotated through an angle θ so as to remove the xy form from the equation $3x^2 + 2\sqrt{3}xy + y^2 = 0$. Then in the new coordinate system the equation $x^2 + y^2 + 2xy = 2$ is transformed to

(A) $(2 + \sqrt{3})x^2 + (2 - \sqrt{3})y^2 + 2xy = 4$
(B) $(2 - \sqrt{3})x^2 + (2 + \sqrt{3})y^2 - 2xy = 4$
(C) $x^2 + y^2 - 2(2 - \sqrt{3})xy = 4(2 - \sqrt{3})$
(D) $x^2 + y^2 + 2(2 + \sqrt{3})xy = 4(2 + \sqrt{3})$

Answer: (A) $(2 + \sqrt{3})x^2 + (2 - \sqrt{3})y^2 + 2xy = 4$ · The council's preliminary key

Q219 AP EAPCET 2024 · 21 May · Shift 2 MCQ

P is a point on $x + y + 5 = 0$, whose perpendicular distance from $2x + 3y + 3 = 0$ is $\sqrt{13}$, then the coordinates of P are:

(A) $(20, -25)$
(B) $(1, -6)$
(C) $(-6, 1)$
(D) $(\sqrt{13}, -5-\sqrt{13})$

Answer: (B) $(1, -6)$ · The council's preliminary key

Q220 AP EAPCET 2024 · 21 May · Shift 2 MCQ

For $\lambda, \mu \in \mathbb{R}$, $(x-2y-1)+\lambda(3x+2y-11)=0$ and $(3x+4y-11)+\mu(-x+2y-3)=0$ represent two families of lines. If the equation of the line common to both the families is $ax+by-5=0$, then $2a+b=$

(A) 0
(B) 1
(C) 4
(D) 3

Answer: (C) 4 · The council's preliminary key

Q221 AP EAPCET 2024 · 21 May · Shift 2 MCQ

If the pair of lines represented by $3x^2-5xy+Py^2=0$ and $6x^2-xy-5y^2=0$ have one line in common, then the sum of all possible values of P is

(A) $\frac{33}{4}$
(B) $\frac{17}{4}$
(C) $-\frac{33}{4}$
(D) $-\frac{17}{4}$

Answer: (D) $-\frac{17}{4}$ · The council's preliminary key

Q222 AP EAPCET 2024 · 20 May · Shift 1 MCQ

If the line segment joining the points $(1, 0)$ and $(0, 1)$ subtends an angle of 45^0 at a variable point P, then the equation of the locus of P is

(A) $(x^2+y^2-1)(x^2+y^2-2x-2y+1)=0, x \neq 0, 1$
(B) $(x^2+y^2-1)(x^2+y^2+2x+2y+1)=0, x \neq 0, 1$
(C) $x^2+y^2+2x+2y+1=0$
(D) $x^2+y^2=4$

Answer: (A) $(x^2+y^2-1)(x^2+y^2-2x-2y+1)=0, x \neq 0, 1$ · The council's preliminary key

Q223 AP EAPCET 2024 · 20 May · Shift 1 MCQ

If the origin is shifted to a point P by the translation of axes to remove the y-term from the equation $x^2-y^2+2y-1=0$, then the transformed equation of it is

(A) $x^2 - y^2 = 1$
(B) $x^2 - y^2 = 0$
(C) $x^2 + y^2 = 1$
(D) $x^2 + y^2 = 0$

Answer: (B) $x^2 - y^2 = 0$ · The council's preliminary key

Q224 AP EAPCET 2024 · 20 May · Shift 1 MCQ

A line L intersects the lines $3x - 2y - 1 = 0$ and $x + 2y + 1 = 0$ at the points A and B. If the point $(1, 2)$ bisects the line segment AB and $\frac{x}{a} + \frac{y}{b} = 1$ is the equation of the line L, then $a + 2b + 1 =$

(A) -1
(B) 0
(C) 1
(D) 2

Answer: (D) 2 · The council's preliminary key

Q225 AP EAPCET 2024 · 20 May · Shift 1 MCQ

A line L passing through the point $(2, 0)$ makes an angle 60^0 with the line $2x - y + 3 = 0$. If L makes an acute angle with the positive X-axis in the anticlockwise direction, then the Y-intercept of the line L is

(A) $\frac{10\sqrt{3}-16}{11}$
(B) $\frac{3\sqrt{2}}{\sqrt{7}}$
(C) $\frac{16-10\sqrt{3}}{11}$
(D) 2

Answer: (C) $\frac{16-10\sqrt{3}}{11}$ · The council's preliminary key

Q226 AP EAPCET 2024 · 20 May · Shift 1 MCQ

If the slope of one line of the pair of lines $2x^2 + hxy + 6y^2 = 0$ is thrice the slope of the other line, then h =

(A) ± 16
(B) ± 9
(C) ± 18
(D) ± 8

Answer: (D) ± 8 · The council's preliminary key

Q227 AP EAPCET 2024 · 20 May · Shift 1 MCQ

If the equation of the pair of straight lines passing through the point $(1, 1)$ and perpendicular to the pair of lines $3x^2 + 11xy - 4y^2 = 0$ is $ax^2 + 2hxy + by^2 + 2gx + 2fy + 12 = 0$, then $2(a - h + b -$

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$g + f - 12) =$

(A) 0

(B) -7

(C) -19

(D) 13

Answer: (C) -19 · The council's preliminary key

Q228 AP EAPCET 2024 · 20 May · Shift 2 MCQ

If the origin is shifted to remove the first degree terms from the equation $2x^2 - 3y^2 + 4xy + 4x + 4y - 14 = 0$ then, with respect to this new co-ordinate system, the transformed equation of $x^2 + y^2 - 3xy + 4y + 3 = 0$ is

(A) $x^2 + y^2 - 3xy - 2x + y + 6 = 0$

(B) $x^2 + y^2 - 3xy - 2x + 7y + 3 = 0$

(C) $x^2 + y^2 - 3xy - 2x + y + 4 = 0$

(D) $x^2 + y^2 - 3xy - 2x + 7y + 4 = 0$

Answer: (D) $x^2 + y^2 - 3xy - 2x + 7y + 4 = 0$ · The council's preliminary key

Q229 AP EAPCET 2024 · 20 May · Shift 2 MCQ

The circumcentre of the triangle formed by the lines $x + y + 2 = 0$, $2x + y + 8 = 0$ and $x - y - 2 = 0$ is

(A) $(-5, 1)$

(B) $(-4, 0)$

(C) $(0, -2)$

(D) $\left(\frac{-8}{3}, \frac{-2}{3}\right)$

Answer: (B) $(-4, 0)$ · The council's preliminary key

Q230 AP EAPCET 2024 · 20 May · Shift 2 MCQ

If the line $2x - 3y + 5 = 0$ is the perpendicular bisector of the line segment joining $(1, -2)$ and (α, β), then $\alpha + \beta =$

(A) 7

(B) 1

(C) -1

(D) -7

Answer: (B) 1 · The council's preliminary key

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Q231 AP EAPCET 2024 · 20 May · Shift 2 MCQ

If the area of the triangle formed by the straight lines $-15x^2 + 4xy + 4y^2 = 0$ and $x = \alpha$ is 200 sq. unit, then $|\alpha| =$

(A) 10
(B) 20
(C) $5\sqrt{2}$
(D) 40

Answer: (A) 10 · The council's preliminary key

Q232 AP EAPCET 2024 · 20 May · Shift 2 MCQ

The equation of straight line passing through the point of intersection of the lines represented by $x^2 + 4xy + 3y^2 - 4x - 10y + 3 = 0$ and the point $(2, 2)$ is

(A) $2x + 3y - 10 = 0$
(B) $3x + 2y - 10 = 0$
(C) $2x + y - 6 = 0$
(D) $x + 2y - 6 = 0$

Answer: (B) $3x + 2y - 10 = 0$ · The council's preliminary key

Q233 AP EAPCET 2024 · 19 May · Shift 2 MCQ

If a variable straight line passing through the point of intersection of the lines $x - 2y + 3 = 0$ and $2x - y - 1 = 0$ intersects the X, Y - axes at A and B respectively, then the equation of the locus of a point which divides the segment AB in the ratio $-2 : 3$ is

(A) $14x^2 + 3xy - 15y^2 = 0$
(B) $xy = 14x + 15y$
(C) $x^2 + xy - y^2 = 0$
(D) $14x + 3xy - 15y = 0$

Answer: (D) $14x + 3xy - 15y = 0$ · The council's preliminary key

Q234 AP EAPCET 2024 · 19 May · Shift 2 MCQ

Point $(-1, 2)$ is changed to (a, b) when the origin is shifted to the point $(2, -1)$ by translation of axes. Point (a, b) is changed to (c, d) when the axes are rotated through an angle of 45° about the new origin. (c, d) is changed to (e, f) when (c, d) is reflected through $y = x$. Then $(e, f) =$

(A) $(-3, 3)$
(B) $(0, 3\sqrt{2})$
(C) $(3\sqrt{2}, 0)$
(D) $(1, 2)$

Answer: (C) $(3\sqrt{2}, 0)$ · The council's preliminary key

Q235 AP EAPCET 2024 · 19 May · Shift 2 MCQ

The point (a, b) is the foot of the perpendicular drawn from the point $(3, 1)$ to the line $x + 3y + 4 = 0$. If (p, q) is the image of (a, b) with respect to the line $3x - 4y + 11 = 0$, then $\frac{p}{a} + \frac{q}{b} =$

(A) -3
(B) -5
(C) 3
(D) 7

Answer: (B) -5 · The council's preliminary key

Q236 AP EAPCET 2024 · 19 May · Shift 2 MCQ

A ray of light passing through the point $(2, 3)$ reflects on Y-axis at a point P. If the reflected ray passes through the point $(3, 2)$ and $P = (a, b)$ then $5b =$

(A) $a - 5$
(B) $a - 13$
(C) $a + 13$
(D) $a + 5$

Answer: (C) $a + 13$ · The council's preliminary key

Q237 AP EAPCET 2024 · 19 May · Shift 2 MCQ

The area (in square units) of the triangle formed by the lines $6x^2 + 13xy + 6y^2 = 0$ and $x + 2y + 3 = 0$ is

(A) $9/2$
(B) $45/4$
(C) $9/8$
(D) $45/8$

Answer: (D) $45/8$ · The council's preliminary key

Q238 AP EAPCET 2024 · 19 May · Shift 2 MCQ

The angle subtended by the chord $x + y - 1 = 0$ of the circle $x^2 + y^2 - 2x + 4y + 4 = 0$ at the origin is

(A) $\cos^{-1}\left(\frac{6}{\sqrt{34}}\right)$

(B) $\frac{\pi}{2}$

(C) $\cos^{-1}\left(\frac{2}{\sqrt{13}}\right)$

(D) $\frac{\pi}{3}$

Answer: (A) $\cos^{-1}\left(\frac{6}{\sqrt{34}}\right)$ · The council's preliminary key

Q239 AP EAPCET 2024 · 18 May · Shift 1 MCQ

If the axes are rotated through an angle 45° about the origin in anticlockwise direction, then the transformed equation of $y^2 = 4ax$ is

(A) $(x+y)^2 = 4\sqrt{2}a(x-y)$

(B) $(x-y)^2 = 4\sqrt{2}a(x+y)$

(C) $(x-y)^2 = \frac{4a}{\sqrt{2}}(x+y)$

(D) $(x+y)^2 = \frac{4a}{\sqrt{2}}(x-y)$

Answer: (A) $(x+y)^2 = 4\sqrt{2}a(x-y)$ · The council's preliminary key

Q240 AP EAPCET 2024 · 18 May · Shift 1 MCQ

If the lines $3x+y-4=0$, $x-\alpha y+10=0$, $\beta x+2y+4=0$ and $3x+y+k=0$ represent the sides of a square, then $\alpha\beta(k+4)^2 =$

(A) -256

(B) -512

(C) -128

(D) -1024

Answer: (B) -512 · The council's preliminary key

Q241 AP EAPCET 2024 · 18 May · Shift 1 MCQ

A is the point of intersection of the lines $3x+y-4=0$ and $x-y=0$. If a line having negative slope makes an angle of 45° with the line $x-3y+5=0$ and passes through A then its equation is

(A) $x+y=2$

(B) $x+2y=3$

(C) $4x+3y=7$

(D) $x+3y=4$

Answer: (B) $x+2y=3$ · The council's preliminary key

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Q242 AP EAPCET 2024 · 18 May · Shift 1 MCQ

$2x^2 - 3xy - 2y^2 = 0$ represents two lines L_1 and L_2. $2x^2 - 3xy - 2y^2 - x + 7y - 3 = 0$ represents another two lines L_3 and L_4. Let A be the point of intersection of lines L_1, L_3 and B be the point of intersection of lines L_2 and L_4. The area of the triangle formed by lines AB and L_3, L_4 is

(A) $\frac{3}{10}$
(B) $\frac{3}{5}$
(C) $\frac{15}{2}$
(D) $\frac{5}{2}$

Answer: (A) $\frac{3}{10}$ · The council's preliminary key

Q243 AP EAPCET 2024 · 18 May · Shift 1 MCQ

The area of the triangle formed by the pair of lines $23x^2 - 48xy + 3y^2 = 0$ with the line $2x + 3y + 5 = 0$ is

(A) $\frac{1}{13\sqrt{3}}$
(B) $\frac{25}{13\sqrt{3}}$
(C) $\frac{7}{13\sqrt{5}}$
(D) $\frac{9}{25\sqrt{3}}$

Answer: (B) $\frac{25}{13\sqrt{3}}$ · The council's preliminary key

Q244 TS EAPCET 2024 · 11 May · Shift 1 MCQ

P and Q are the points of trisection of the line segment joining the points $(3, -7)$ and $(-5, 3)$. If PQ subtends right angle at a variable point R, then the locus of R is

(A) a circle with radius $\frac{\sqrt{41}}{3}$
(B) a circle with radius $\sqrt{409}$
(C) a pair of straight lines passing through $(-1, -2)$
(D) a pair of straight lines passing through $(1, 2)$

Answer: (A) a circle with radius $\frac{\sqrt{41}}{3}$ · The council's preliminary key

Q245 TS EAPCET 2024 · 11 May · Shift 1 MCQ

(a, b) is the point to which the origin has to be shifted by translation of axes so as to remove the first-degree terms from the equation $2x^2 - 3xy + 4y^2 + 5y - 6 = 0$. If the angle by which the axes are to be rotated in positive direction about the origin to remove the xy-term from the equation $ax^2 + 23abxy + by^2 = 0$ is θ, then $\tan 2\theta =$

(A) $\frac{\pi}{4}$
(B) 60
(C) $\frac{\pi}{3}$
(D) 15

Answer: (B) 60 · The council's preliminary key

Q246 TS EAPCET 2024 · 11 May · Shift 1 MCQ

$A(1,-2), B(-2,3), C(-1,-3)$ are the vertices of a triangle ABC. L_1 is the perpendicular drawn from A to BC and L_2 is the perpendicular bisector of AB. If (l,m) is the point of intersection of L_1 and L_2, then $26m-3=$

(A) $26l$
(B) $89l$
(C) $13l$
(D) $43l$

Answer: (C) $13l$ · The council's preliminary key

Q247 TS EAPCET 2024 · 11 May · Shift 1 MCQ

The area of the parallelogram formed by the lines $L_1 \equiv \lambda x+4y+2=0$, $L_2 \equiv 3x+4y-3=0$, $L_3 \equiv 2x+\mu y+6=0$, $L_4 \equiv 2x+y+3=0$, where L_1 is parallel to L_2 and L_3 is parallel to L_4 is

(A) 9
(B) 7
(C) 5
(D) 3

Answer: (D) 3 · The council's preliminary key

Q248 TS EAPCET 2024 · 11 May · Shift 1 MCQ

If $A(1,2)$, $B(2,1)$ are two vertices of an acute angled triangle and $S(0,0)$ is its circumcenter, then the angle subtended by AB at the third vertex is

(A) $\mathrm{Tan}^{-1}\left(\frac{1}{3}\right)$
(B) $\mathrm{Tan}^{-1}\left(\frac{1}{2}\right)$
(C) $\frac{\pi}{4}$
(D) $\frac{\pi}{6}$

Answer: (A) $\mathrm{Tan}^{-1}\left(\frac{1}{3}\right)$ · The council's preliminary key

Q249 TS EAPCET 2024 · 11 May · Shift 1 MCQ

If the angle between the pair of lines given by the equation $ax^2+4xy+2y^2=0$ is 45° then the possible values of 'a'

(A) are -3 or 21
(B) are $-6 \pm 4\sqrt{3}$
(C) are $-6 \pm 24\sqrt{2}$
(D) do not exist

Answer: (B) are $-6 \pm 4\sqrt{3}$ · The council's preliminary key

Q250 TS EAPCET 2024 · 10 May · Shift 1 MCQ

If the distance from a variable point P to the point $(4, 3)$ is equal to the perpendicular distance from P to the line $x + 2y - 1 = 0$, then the equation of the locus of the point P is

(A) $4x^2 + 4xy + y^2 - 38x + 26y + 124 = 0$
(B) $4x^2 - 4xy + y^2 - 38x - 26y + 124 = 0$
(C) $4x^2 - 4xy + y^2 + 38x + 26y + 124 = 0$
(D) $4x^2 - 4xy + y^2 - 38x + 26y + 124 = 0$

Answer: (B) $4x^2 - 4xy + y^2 - 38x - 26y + 124 = 0$ · The council's preliminary key

Q251 TS EAPCET 2024 · 10 May · Shift 1 MCQ

$(0, k)$ is the point to which the origin is to be shifted by the translation of the axes so as to remove the first degree terms from the equation $ax^2 - 2xy + by^2 - 2x + 4y + 1 = 0$ and $\frac{1}{2}\mathrm{Tan}^{-1}(2)$ is the angle through which the coordinate axes are to be rotated about the origin to remove the xy-term from the given equation, then $a + b =$

(A) 1
(B) -2
(C) 3
(D) -4

Answer: (C) 3 · The council's preliminary key

Q252 TS EAPCET 2024 · 10 May · Shift 1 MCQ

β is the angle made by the perpendicular drawn from origin to the line $L \equiv x + y - 2 = 0$ with the positive X-axis in the anticlockwise direction. If 'a' is the X-intercept of the line $L = 0$ and p is the perpendicular distance from the origin to the line $L = 0$, then $a \tan\beta + p^2 =$

(A) 1
(B) 2
(C) 3
(D) 4

Answer: (D) 4 · The council's preliminary key

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Q253 TS EAPCET 2024 · 10 May · Shift 1 MCQ

The line $2x + y - 3 = 0$ divides the line segment joining the points A(1,2) and B(-2,1) in the ratio $a : b$ at the point C. If the point C divides the line segment joining the points $\mathrm{P}\left(\frac{b}{3a}, -3\right)$ and $\mathrm{Q}\left(-3, -\frac{b}{3a}\right)$ in the ratio $p : q$, then $\frac{p}{q} + \frac{q}{p} =$

(A) $\frac{29}{10}$
(B) $\frac{17}{10}$
(C) 6
(D) 5

Answer: (A) $\frac{29}{10}$ · The council's preliminary key

Q254 TS EAPCET 2024 · 10 May · Shift 1 MCQ

If Q and R are the images of the point P(2,3) with respect to the lines $x - y + 2 = 0$ and $2x + y - 2 = 0$ respectively, then Q and R lie on

(A) the same side of the line $2x + y - 2 = 0$
(B) the opposite sides of the line $2x - y - 2 = 0$
(C) the same side of the line $x + y + 2 = 0$
(D) the opposite sides of the line $x - y + 2 = 0$

Answer: (C) the same side of the line $x + y + 2 = 0$ · The council's preliminary key

Q255 TS EAPCET 2024 · 10 May · Shift 1 MCQ

If $(2, -1)$ is the point of intersection of the pair of lines $2x^2 + axy + 3y^2 + bx + cy - 3 = 0$ then $3a + 2b + c =$

(A) 11
(B) 0
(C) 1
(D) 21

Answer: (A) 11 · The council's preliminary key

Q256 TS EAPCET 2024 · 10 May · Shift 2 MCQ

If the locus of the centroid of the triangle with vertices $A(a, 0)$, $B(a\cos t, a\sin t)$ and $C(b\sin t, -b\cos t)$ (t is a parameter) is $9x^2 + 9y^2 - 6x = 49$, then the area of the triangle formed by the line $\frac{x}{a} + \frac{y}{b} = 1$ with the coordinate axes is

(A) $\frac{49}{2}$
(B) $\frac{7}{2}$
(C) $\frac{1}{2}$
(D) $\frac{47}{2}$

Answer: (B) $\frac{7}{2}$ · The council's preliminary key

Q257 TS EAPCET 2024 · 10 May · Shift 2 MCQ

By shifting the origin to the point $(h, 5)$ by the translation of coordinate axes, if the equation $y = x^3 - 9x^2 + cx - d$ transforms to $Y = X^3$, then $\left(d - \frac{c}{h}\right) =$

(A) 0
(B) 13
(C) 11
(D) 25

Answer: (B) 13 · The council's preliminary key

Q258 TS EAPCET 2024 · 10 May · Shift 2 MCQ

The equation of the straight line whose slope is $\frac{-2}{3}$ and which divides the line segment joining $(1, 2), (-3, 5)$ in the ratio $4 : 3$ externally is

(A) $2x + 3y - 12 = 0$
(B) $3x + 2y + 27 = 0$
(C) $2x + 3y - 9 = 0$
(D) $2x + 3y + 12 = 0$

Answer: (A) $2x + 3y - 12 = 0$ · The council's preliminary key

Q259 TS EAPCET 2024 · 10 May · Shift 2 MCQ

$7x + y - 24 = 0$ and $x + 7y - 24 = 0$ represent the equal sides of an isosceles triangle. If the third side passes through $(-1, 1)$ then a possible equation for the third side is

(A) $3x - y = -4$
(B) $x + y = 0$
(C) $x - 2y = -3$
(D) $3x + y = -2$

Answer: (B) $x + y = 0$ · The council's preliminary key

Q260 TS EAPCET 2024 · 10 May · Shift 2 MCQ

The combined equation of a possible pair of adjacent sides of a square with area 16 square units whose centre is the point of intersection of the lines $x + 2y - 3 = 0$ and $2x - y - 1 = 0$ is

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(A) $(2x-y-1+4\sqrt{5})(x+2y-3+4\sqrt{5})=0$
(B) $(2x-y-1-4\sqrt{5})(x+2y-4\sqrt{5})=0$
(C) $(2x-y-2\sqrt{5})(x+2y+2\sqrt{5})=0$
(D) $(2x-y-1-2\sqrt{5})(x+2y-3+2\sqrt{5})=0$

Answer: (D) $(2x-y-1-2\sqrt{5})(x+2y-3+2\sqrt{5})=0$ · The council's preliminary key

Q261 TS EAPCET 2024 · 10 May · Shift 2 MCQ

If the line $2x+by+5=0$ forms an equilateral triangle with $ax^2-96bxy+ky^2=0$, then $a+3k=$

(A) $3b$
(B) 192
(C) $4b^2$
(D) 102

Answer: (B) 192 · The council's preliminary key

Q262 TS EAPCET 2024 · 9 May · Shift 1 MCQ

The centroid of a variable triangle ABC is at the distance of 5 units from the origin. If $A=(2,3)$ and $B=(3,2)$, then the locus of C is

(A) a circle of radius 225 units
(B) a rectangular hyperbola
(C) a circle of diameter 30 units
(D) an ellipse with eccentricity $\frac{4}{5}$

Answer: (C) a circle of diameter 30 units · The council's preliminary key

Q263 TS EAPCET 2024 · 9 May · Shift 1 MCQ

When the origin is shifted to the point $(2,b)$ by translation of axes, the coordinates of the point $(a,4)$ have changed to $(6,8)$. When the origin is shifted to (a,b) by translation of axes, if the transformed equation of $x^2+4xy+y^2=0$ is $X^2+2HXY+Y^2+2GX+2FY+C=0$, then $2H(G+F)=$

(A) C
(B) $-2C$
(C) $2C$
(D) $-C$

Answer: (D) $-C$ · The council's preliminary key

Q264 TS EAPCET 2024 · 9 May · Shift 1 MCQ

The slope of a line L passing through the point $(-2,-3)$ is not defined. If the angle between the lines L and $ax-2y+3=0\,(a>0)$ is 45°, then the angle made by the line $x+ay-4=0$ with positive X-axis in the anticlockwise direction is

(A) $\pi - \mathrm{Tan}^{-1}\left(\frac{1}{2}\right)$
(B) $\frac{\pi}{3}$
(C) $\frac{2\pi}{3}$
(D) $\mathrm{Tan}^{-1}\left(\frac{1}{2}\right)$

Answer: (A) $\pi - \mathrm{Tan}^{-1}\left(\frac{1}{2}\right)$ · The council's preliminary key

Q265 TS EAPCET 2024 · 9 May · Shift 1 MCQ

(a, b) is the point of concurrency of the lines $x - 3y + 3 = 0$, $kx + y + k = 0$ and $2x + y - 8 = 0$. If the perpendicular distance from the origin to the line $L \equiv ax - by + 2k = 0$ is p, then the perpendicular distance from the point $(2, 3)$ to $L = 0$ is

(A) $\frac{p}{2}$
(B) p
(C) $2p$
(D) $3p$

Answer: (B) p · The council's preliminary key

Q266 TS EAPCET 2024 · 9 May · Shift 1 MCQ

If $(4, 3)$ and $(1, -2)$ are the end points of a diagonal of a square, then the equation of one of its sides is

(A) $4x + y - 11 = 0$
(B) $2x + y = 0$
(C) $2x - 3y + 1 = 0$
(D) $x - 4y - 9 = 0$

Answer: (D) $x - 4y - 9 = 0$ · The council's preliminary key

Q267 TS EAPCET 2024 · 9 May · Shift 1 MCQ

Area of the triangle bounded by the lines given by the equations $12x^2 - 20xy + 7y^2 = 0$ and $x + y - 1 = 0$ is

(A) $\frac{8}{29}$
(B) $\frac{8}{39}$
(C) $\frac{4}{29}$
(D) $\frac{4}{39}$

Answer: (D) $\frac{4}{39}$ · The council's preliminary key

Q268 TS EAPCET 2024 · 9 May · Shift 2 MCQ

If the ratio of the distances of a variable point P from the point $(1, 1)$ and the line $x - y + 2 = 0$ is $1 : \sqrt{2}$ then the equation of the locus of P is

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(A) $x^2 + 2xy + y^2 - 8x = 0$

(B) $3x^2 + 2xy + 3y^2 - 12x - 4y + 4 = 0$

(C) $x^2 + 2xy + y^2 - 12x + 4y + 4 = 0$

(D) $x^2 + 2xy + y^2 - 8x + 8y = 0$

Answer: (B) $3x^2 + 2xy + 3y^2 - 12x - 4y + 4 = 0$ · The council's preliminary key

Q269 TS EAPCET 2024 · 9 May · Shift 2 MCQ

If the origin is shifted to the point $\left(\frac{3}{2}, -2\right)$ by the translation of axes, then the transformed equation of $2x^2 + 4xy + y^2 + 2x - 2y + 1 = 0$ is

(A) $4x^2 + 8xy + 2y^2 - 16 = 0$

(B) $2x^2 - 4xy + y^2 = 0$

(C) $4x^2 + 8xy + 2y^2 + 9 = 0$

(D) $2x^2 - 4xy + y^2 + 16 = 0$

Answer: (C) $4x^2 + 8xy + 2y^2 + 9 = 0$ · The council's preliminary key

Q270 TS EAPCET 2024 · 9 May · Shift 2 MCQ

$L \equiv x\cos\alpha + y\sin\alpha - p = 0$ represents a line perpendicular to the line $x + y + 1 = 0$. If p is positive, α lies in the fourth quadrant and perpendicular distance from $(\sqrt{2}, \sqrt{2})$ to the line $L = 0$ is 5 units then $p =$

(A) 5

(B) $\frac{5}{2}$

(C) 10

(D) $\frac{15}{2}$

Answer: (A) 5 · The council's preliminary key

Q271 TS EAPCET 2024 · 9 May · Shift 2 MCQ

$(-2, -1)$, $(2, 5)$ are two vertices of a triangle and $\left(2, \frac{5}{3}\right)$ is its orthocenter. If (m, n) is the third vertex of that triangle then $m + n =$

(A) -4

(B) -2

(C) 5

(D) 8

Answer: (C) 5 · The council's preliminary key

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Q272 TS EAPCET 2024 · 9 May · Shift 2 MCQ

$L_1 \equiv 2x + y - 3 = 0$ and $L_2 \equiv ax + by + c = 0$ are two equal sides of an isosceles triangle. If $L_3 \equiv x + 2y + 1 = 0$ is the third side of this triangle and $(5, 1)$ is a point on $L_2 = 0$ then $\frac{b^2}{|ac|} =$

(A) $\frac{121}{2}$
(B) $\frac{49}{52}$
(C) $\frac{81}{49}$
(D) $\frac{25}{4}$

Answer: (A) $\frac{121}{2}$ · The council's preliminary key

Q273 TS EAPCET 2024 · 9 May · Shift 2 MCQ

The slope of one of the pair of lines $2x^2 + hxy + 6y^2 = 0$ is thrice the slope of the other line then, $h =$

(A) ± 16
(B) ± 9
(C) ± 18
(D) ± 8

Answer: (D) ± 8 · The council's preliminary key

Q274 AP EAPCET 2023 · 19 May · Shift 1 MCQ

If the ends of the hypotenuse of a right angled triangle are $(0, a)$ and $(a, 0)$, then the locus of the third vertex is

(A) $x^2 + y^2 - ax - ay = 0$
(B) $x^2 + y^2 - ax + ay = 0$
(C) $x^2 - y^2 - ax - ay = 0$
(D) $x^2 - y^2 + ax - ay = 0$

Answer: (A) $x^2 + y^2 - ax - ay = 0$ · The council's preliminary key

Q275 AP EAPCET 2023 · 19 May · Shift 1 MCQ

The point P $(2, 1)$ is translated to a point Q parallel to the line $L \equiv x - y - 4 = 0$ by $2\sqrt{3}$ units. If the point Q lies in the third quadrant, then the equation of the line passing through Q and perpendicular to L is

(A) $2x + 2y = 1 - \sqrt{6}$
(B) $x + y = 3 - 3\sqrt{6}$
(C) $x + y = 2 - \sqrt{6}$
(D) $x + y = 3 - 2\sqrt{6}$

Answer: (D) $x + y = 3 - 2\sqrt{6}$ · The council's preliminary key

Q276 AP EAPCET 2023 · 19 May · Shift 1 MCQ

If O is the origin and P, Q are are points on the line $3x + 4y + 15 = 0$ such that $OP = OQ = 9$, then the area of ΔOPQ is

(A) $6\sqrt{2}$
(B) $9\sqrt{2}$
(C) $12\sqrt{2}$
(D) $18\sqrt{2}$

Answer: (D) $18\sqrt{2}$ · The council's preliminary key

Q277 AP EAPCET 2023 · 19 May · Shift 1 MCQ

The number of straight lines that can be drawn through the point $(-3, 4)$ which are at a distance of 5 units from the point $(2, -8)$ is

(A) 0
(B) 1
(C) 2
(D) Infinite

Answer: (C) 2 · The council's preliminary key

Q278 AP EAPCET 2023 · 19 May · Shift 1 MCQ

If the lines joining the origin to the points of intersection of $2x + 3y = k$ and $3x^2 - xy + 3y^2 + 2x - 3y - 4 = 0$ are at right angles, then

(A) $6k^2 + 5k + 52 = 0$
(B) $6k^2 + 5k - 52 = 0$
(C) $6k^2 - 5k + 52 = 0$
(D) $6k^2 - 5k - 52 = 0$

Answer: (D) $6k^2 - 5k - 52 = 0$ · The council's preliminary key

Q279 AP EAPCET 2023 · 19 May · Shift 1 MCQ

Let PQR be a right angled isosceles triangle, right angled at $P(2, 1)$. If the equation of the side QR is $2x + y = 3$, then the equation of one of its sides other than QR is

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(A) $x + 2y - 4 = 0$
(B) $3x - y - 5 = 0$
(C) $x - 2y = 0$
(D) $2x + y - 5 = 0$

Answer: (B) $3x - y - 5 = 0$ · The council's preliminary key

Q280 AP EAPCET 2023 · 18 May · Shift 1 MCQ

In ΔABC, if $A = (1, 2)$ and the equations of the medians through B and C are $x + y = 5$ and $x = 4$ respectively, then the area of ΔABC is

(A) 12
(B) 9
(C) 4
(D) 5

Answer: (B) 9 · The council's preliminary key

Q281 AP EAPCET 2023 · 18 May · Shift 1 MCQ

The equation of the line, passing through the point $(a\cos^3\theta, a\sin^3\theta)$ and perpendicular to the line $x\cos\theta - y\sin\theta = a$, is

(A) $2x\sin\theta + 2y\cos\theta = a\sin 2\theta$
(B) $x\cos\theta - y\sin\theta = a\sin 2\theta$
(C) $x\sin\theta + y\sin\theta = a\cos 2\theta$
(D) $x\sin\theta - y\cos\theta = a\cos 2\theta$

Answer: (A) $2x\sin\theta + 2y\cos\theta = a\sin 2\theta$ · The council's preliminary key

Q282 AP EAPCET 2023 · 18 May · Shift 1 MCQ

A ray of light incident along a line, meets another line $7x - y + 1 = 0$ at the point $(0, 1)$ and it is then reflected from this point along the line $y + 2x = 1$. Then the equation of the line of incidence of the ray of light is

(A) $41x - 25y + 25 = 0$
(B) $41x + 38y + 38 = 0$
(C) $41x - 38y + 38 = 0$
(D) $41x + 25y - 25 = 0$

Answer: (C) $41x - 38y + 38 = 0$ · The council's preliminary key

Q283 AP EAPCET 2023 · 18 May · Shift 1 MCQ

If the lines joining the origin to the points of intersection of a line L and $x^2 + y^2 = 4$ are the coordinate axes, then the equation of the line L is

(A) $x + y = 2$
(B) $x + y = 4$
(C) $x + y = 1$
(D) $x + y = 0$

Answer: (A) $x + y = 2$ · The council's preliminary key

Q284 AP EAPCET 2023 · 18 May · Shift 1 MCQ

If the chord through $(1, -2)$ cuts the curve $3x^2 - y^2 - 2x + 4y = 0$ at P and Q, then the angle subtended by PQ at the origin is

(A) 30°
(B) 45°
(C) 60°
(D) 90°

Answer: (D) 90° · The council's preliminary key

Q285 AP EAPCET 2023 · 18 May · Shift 1 MCQ

The transformed equation of $2x^2 + 3y^2 - z^2 - 8x + 18y + 2z + 9 = 0$ when the axes are translated to the point $(2, -3, 1)$ is

(A) $2x^2 + 3y^2 - z^2 = 25$
(B) $2x^2 + 3y^2 + z^2 = 25$
(C) $2x^2 - 3y^2 - z^2 = 25$
(D) $2x^2 + 3y^2 - z^2 = 50$

Answer: (A) $2x^2 + 3y^2 - z^2 = 25$ · The council's preliminary key

Q286 AP EAPCET 2023 · 18 May · Shift 2 MCQ

The Cartesian form of the curve given by $x = \frac{a}{2}\left(t + \frac{1}{t}\right)$, $y = \frac{a}{2}\left(t - \frac{1}{t}\right)$, t is a parameter, is

(A) $x^2 + y^2 = a^2$
(B) $x^2 - y^2 = a^2$
(C) $2x^2 - y^2 = a^2$
(D) $x^2 - 2y^2 = a^2$

Answer: (B) $x^2 - y^2 = a^2$ · The council's preliminary key

Q287 AP EAPCET 2023 · 18 May · Shift 2 MCQ

If a straight line L perpendicular to the line $3x - 4y = 6$ forms a triangle of area 6 square units with coordinate axes, then the minimum perpendicular distance from the point $(1, 1)$ to the line L is

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(A) 1
(B) $\sqrt{2}$
(C) 2
(D) $\sqrt{3}$

Answer: (A) 1 · The council's preliminary key

Q288 AP EAPCET 2023 · 18 May · Shift 2 MCQ

Let a, b, c and d be non-zero numbers. If the point of intersection of the lines $4ax + 2ay + c = 0$ and $5bx + 2by + d = 0$ lies in the fourth quadrant and is equidistant from the two coordinate axes, then

(A) $3bc - 2ad = 0$
(B) $3bc + 2ad = 0$
(C) $2bc - 3ad = 0$
(D) $2bc + 3ad = 0$

Answer: (A) $3bc - 2ad = 0$ · The council's preliminary key

Q289 AP EAPCET 2023 · 18 May · Shift 2 MCQ

If the image of the point $(3, 8)$ in the line $x + 3y = 7$ is (α, β), then $\alpha + \beta =$

(A) -1
(B) 3
(C) -5
(D) -9

Answer: (C) -5 · The council's preliminary key

Q290 AP EAPCET 2023 · 18 May · Shift 2 MCQ

The condition that the lines joining the origin to the points of intersection of the line $\frac{x}{a} + \frac{y}{b} = 2$ and the circle $(x - a)^2 + (y - b)^2 = r^2$ are at right angles is

(A) $a^2 + b^2 = r^2$
(B) $a^2 - b^2 = r^2$
(C) $a^2 - b^2 + r^2 = 0$
(D) $a^2 + b^2 + r^2 = 0$

Answer: (A) $a^2 + b^2 = r^2$ · The council's preliminary key

Q291 AP EAPCET 2023 · 18 May · Shift 2 MCQ

The square of the distance from the origin to the point of intersection of the pair of lines $ax^2 + 2hxy - ay^2 + 2gx + 2fy + c = 0$ is

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(A) $\frac{f^2+g^2}{a^2+h^2}$
(B) $\frac{f^2+g^2}{a^2-h^2}$
(C) $\frac{f^2+g^2}{h^2-a^2}$
(D) $\frac{f^2-g^2}{h^2-a^2}$

Answer: (A) $\frac{f^2+g^2}{a^2+h^2}$ · The council's preliminary key

Q292 AP EAPCET 2023 · 18 May · Shift 2 MCQ

Let C be the centre and A be one end of a diameter of the circle $x^2+y^2-2x-4y-20=0$. If P is a point on AC such that A divides CP in the ratio $2:3$, then the locus of P is

(A) $x^2+y^2-2x-4y-205=0$
(B) $2x^2+2y^2-4x-8y-405=0$
(C) $x^2+y^2-2x-4y-450=0$
(D) $4x^2+4y^2-8x-16y-605=0$

Answer: (D) $4x^2+4y^2-8x-16y-605=0$ · The council's preliminary key

Q293 AP EAPCET 2023 · 17 May · Shift 1 MCQ

The locus of the point which is equidistant from the point $(1,1)$ and the line $x+y+1=0$ is

(A) $x^2-y^2+6x+4y-3=0$
(B) $(x-y)^2-6(x+y)+3=0$
(C) $(x+y)^2+6(x-y)+3=0$
(D) $x^2+y^2-2x-2y+4=0$

Answer: (B) $(x-y)^2-6(x+y)+3=0$ · The council's preliminary key

Q294 AP EAPCET 2023 · 17 May · Shift 1 MCQ

If the y-intercept of the perpendicular bisector of the line segment joining $P(1,4)$ and $Q(k,3)$ is -4, then a possible value of k is

(A) 2
(B) -2
(C) -4
(D) 1

Answer: (C) -4 · The council's preliminary key

Q295 AP EAPCET 2023 · 17 May · Shift 1 MCQ

A straight line L at a distance of 4 units from the origin makes positive intercepts on the coordinate axes and the perpendicular drawn from the origin to this line makes an angle of 60° with the line $x+y=0$. Then the equation of the line L is

(A) $(\sqrt{3}+1)x+(\sqrt{3}-1)y=8\sqrt{2}$
(B) $(\sqrt{3}-1)x+(\sqrt{3}+1)y=8\sqrt{2}$
(C) $\sqrt{3}x+y=8$
(D) $x+\sqrt{3}y=8$

Answer: (B) $(\sqrt{3}-1)x+(\sqrt{3}+1)y=8\sqrt{2}$ · The council's preliminary key

Q296 AP EAPCET 2023 · 17 May · Shift 1 MCQ

If p and q are the x and y – intercepts respectively of the line passing through the points $(a\cos\alpha, b\sin\alpha)$ and $(a\cos\beta, b\sin\beta)$, then $\frac{a^2}{p^2}+\frac{b^2}{q^2}=$

(A) $\sin^2\left(\frac{\alpha-\beta}{2}\right)$
(B) $\cos^2\left(\frac{\alpha-\beta}{2}\right)$
(C) $\sec^2\left(\frac{\alpha-\beta}{2}\right)$
(D) $\operatorname{cosec}^2\left(\frac{\alpha-\beta}{2}\right)$

Answer: (C) $\sec^2\left(\frac{\alpha-\beta}{2}\right)$ · The council's preliminary key

Q297 AP EAPCET 2023 · 17 May · Shift 1 MCQ

If $ad\neq 0$ and two of the lines represented by $ax^3+3bx^2y+3cxy^2+dy^3=0$ are perpendicular, then

(A) $a^2+ac+bd+d^2=0$
(B) $a^2+3ac+3bd+d^2=0$
(C) $a^2-3ac-3bd+d^2=0$
(D) $a^2+3ac-3bd+d^2=0$

Answer: (B) $a^2+3ac+3bd+d^2=0$ · The council's preliminary key

Q298 AP EAPCET 2023 · 17 May · Shift 1 MCQ

The absolute value of the tangent of the difference of the angles made by the lines $4x^2-24xy+11y^2=0$ with the X-axis is

(A) $\frac{4}{11}$
(B) $\frac{24}{11}$
(C) $\frac{4}{3}$
(D) $\frac{11}{24}$

Answer: (C) $\frac{4}{3}$ · The council's preliminary key

Q299 AP EAPCET 2023 · 17 May · Shift 2 MCQ

If $t\in\mathbb{R}-\{-1\}$, then the locus of the point $\left(\frac{3at}{1+t^3},\frac{3at^2}{1+t^3}\right)$ is

(A) $x^3 + y^3 = 3ax^2y^2$
(B) $x^3 - 3ax^2y - 3axy^2 + y^3 = 0$
(C) $x^3 + y^3 = 3axy$
(D) $x^3 - y^3 = 3axy$

Answer: (C) $x^3 + y^3 = 3axy$ · The council's preliminary key

Q300 AP EAPCET 2023 · 17 May · Shift 2 MCQ

The centre of a square of side 4 units length is $(3, 7)$ and one of the diagonals is parallel to the line $y = x$. If $(x_1, y_1), (x_2, y_2), (x_3, y_3), (x_4, y_4)$ are the vertices of this square, then $\frac{y_1y_2y_3y_4}{x_1x_2x_3x_4} =$

(A) 81
(B) $\frac{245}{16}$
(C) 25
(D) $\frac{105}{2}$

Answer: (A) 81 · The council's preliminary key

Q301 AP EAPCET 2023 · 17 May · Shift 2 MCQ

The area (in square units) of the triangle formed by the lines $x = 0$, $y = 0$ and $3x + 4y = 12$ is

(A) $\frac{288}{7}$
(B) $\frac{169}{7}$
(C) $\frac{144}{7}$
(D) $\frac{72}{7}$

Answer: (C) $\frac{144}{7}$ · The council's preliminary key

Q302 AP EAPCET 2023 · 17 May · Shift 2 MCQ

Let origin be the centroid of an equilateral triangle ABC and one of its sides be along the straight line $x + y = 3$. If R and r are its circum radius and inradius respectively, then $R + r =$

(A) $2\sqrt{2}$
(B) $\frac{9}{\sqrt{2}}$
(C) $7\sqrt{2}$
(D) $\frac{3}{\sqrt{2}}$

Answer: (B) $\frac{9}{\sqrt{2}}$ · The council's preliminary key

Q303 AP EAPCET 2023 · 17 May · Shift 2 MCQ

The equation of the line common to the pair of lines $(p^2 - q^2)x^2 + (q^2 - r^2)xy + (r^2 - p^2)y^2 = 0$ and $(l - m)x^2 + (m - n)xy + (n - l)y^2 = 0$ is

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(A) $x + y = 0$
(B) $x - y = 0$
(C) $x + y = pqr$
(D) $x - y = pqr$

Answer: (B) $x - y = 0$ · The council's preliminary key

Q304 AP EAPCET 2023 · 17 May · Shift 2 MCQ

The lines $L_1 : y - x = 0$ and $L_2 : 2x + y = 0$ intersect the line $L_3 : y + 2 = 0$ at P and Q respectively. The bisector of the acute angle between L_1 and L_2 intersects L_3 at R.

Statement 1: PR : RQ $= 2\sqrt{2} : \sqrt{5}$

Statement 2 : In any triangle, the bisector of an angle divides the triangle into two similar triangles.

(A) Statement-1 is true, Statement-2 is false
(B) Statement-1 is false, Statement-2 is true
(C) Statement-1 and Statement-2 are both true
(D) Statement-1 and Statement-2 are both false

Answer: (A) Statement-1 is true, Statement-2 is false · The council's preliminary key

Q305 AP EAPCET 2023 · 16 May · Shift 1 MCQ

If $A = (2, 3)$ and $B = (-4, 5)$ are two fixed points, then the locus of a point P such that the area of ΔPAB is 12 square units is

(A) $x^2 + 6xy + 9y^2 + 22x + 66y + 23 = 0$
(B) $x^2 - 6xy + 9y^2 + 22x + 66y + 23 = 0$
(C) $x^2 + 6xy + 9y^2 - 22x - 66y - 23 = 0$
(D) $x^2 - 6xy + 9y^2 - 22x - 66y - 23 = 0$

Answer: (C) $x^2 + 6xy + 9y^2 - 22x - 66y - 23 = 0$ · The council's preliminary key

Q306 AP EAPCET 2023 · 16 May · Shift 1 MCQ

The sides of a triangle are $3x + 2y - 6 = 0, 2x - 3y + 6 = 0$ and $x + 2y + 2 = 0$. If $P(0, b)$ lies either on the triangle or inside the triangle, then b lies in the interval

(A) $[-1, 3]$
(B) $[2, 3]$
(C) $[-1, 2]$
(D) $[-2, 2]$

Answer: (C) $[-1, 2]$ · The council's preliminary key

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Q307 AP EAPCET 2023 · 16 May · Shift 1 MCQ

A point on the straight line $3x + 5y = 15$ which is equidistant from the coordinate axes will lie in

(A) either 1st quadrant or 2nd quadrant
(B) 4th quadrant only
(C) 3rd quadrant only
(D) either in the 3rd or in the 4th quadrant

Answer: (A) either 1st quadrant or 2nd quadrant · The council's preliminary key

Q308 AP EAPCET 2023 · 16 May · Shift 1 MCQ

The equation of the line passing through the points $\left(ct_1, \frac{c}{t_1}\right)$ and $\left(ct_2, \frac{c}{t_2}\right)$ is

(A) $x + t_1t_2y = c(t_1 + t_2)$
(B) $y + t_1t_2x = c(t_1 + t_2)$
(C) $x - t_1t_2y = c(t_1 + t_2)$
(D) $y - t_1t_2x = c(t_1 + t_2)$

Answer: (A) $x + t_1t_2y = c(t_1 + t_2)$ · The council's preliminary key

Q309 AP EAPCET 2023 · 16 May · Shift 1 MCQ

If the angle between the pair of lines $x^2 + 2\sqrt{2}xy + ky^2 = 0$, $k > 0$ is 45°, then the area (in square units) of the triangle formed by the pair of bisectors of the angles between these lines and the line $x + 2y + 1 = 0$ is

(A) $\frac{1}{3}$
(B) 1
(C) $\frac{2}{3}$
(D) 2

Answer: (A) $\frac{1}{3}$ · The council's preliminary key

Q310 AP EAPCET 2023 · 16 May · Shift 1 MCQ

The coordinates of the point $(3, -7, 5)$ in the new system, when the origin is shifted to the point $(-1, -1, -1)$ by the translation coordinate of axes, is

(A) $(4, -6, 6)$
(B) $(4, 6, 6)$
(C) $(6, 6, 6)$
(D) $(4, 4, 4)$

Answer: (A) $(4, -6, 6)$ · The council's preliminary key

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Q311 AP EAPCET 2023 · 16 May · Shift 2 MCQ

If the equations $x = t^2 + t + 1$, $y = t^2 - t + 1$ represents a curve C with parameter t, then the Cartesian equation of C is

(A) $x^2 - 2xy + y^2 - 2x - 2y + 4 = 0$
(B) $x^2 + 2xy + y^2 - 2x - 2y + 4 = 0$
(C) $x^2 - 2xy + y^2 + 2x + 2y + 4 = 0$
(D) $x^2 - 2xy - y^2 + 2x + 2y + 4 = 0$

Answer: (A) $x^2 - 2xy + y^2 - 2x - 2y + 4 = 0$ · The council's preliminary key

Q312 AP EAPCET 2023 · 16 May · Shift 2 MCQ

The circumcentre of the triangle with vertices $(-2, 3), (2, -1), (4, 0)$ is

(A) $\left(\frac{3}{2}, \frac{5}{2}\right)$
(B) $\left(\frac{3}{2}, \frac{-5}{2}\right)$
(C) $\left(\frac{-3}{2}, \frac{5}{2}\right)$
(D) $\left(\frac{-3}{2}, \frac{-5}{2}\right)$

Answer: (A) $\left(\frac{3}{2}, \frac{5}{2}\right)$ · The council's preliminary key

Q313 AP EAPCET 2023 · 16 May · Shift 2 MCQ

If PS is the median of the triangle with vertices P(2, 2), Q(6, -1) and R(7, 3), then the equation of the line passing through $(1, -1)$ and parallel to PS is

(A) $4x + 7y + 3 = 0$
(B) $2x - 9y - 11 = 0$
(C) $4x - 7y - 11 = 0$
(D) $2x + 9y + 7 = 0$

Answer: (D) $2x + 9y + 7 = 0$ · The council's preliminary key

Q314 AP EAPCET 2023 · 16 May · Shift 2 MCQ

Two sides of a rhombus are along the lines $x - y + 1 = 0$ and $7x - y - 5 = 0$. If its diagonals intersect at $(-1, -2)$, then one of the vertices of this rhombus is

(A) $(3, 16)$
(B) $(-1, -12)$
(C) $\left(\frac{1}{3}, \frac{-8}{3}\right)$
(D) $(2, 9)$

Answer: (C) $\left(\frac{1}{3}, \frac{-8}{3}\right)$ · The council's preliminary key

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Q315 AP EAPCET 2023 · 16 May · Shift 2 MCQ

If $2x^2 - 5xy + 2y^2 = 0$ represents two sides of a triangle whose centroid is $(1, 1)$, then the equation of the third side is

(A) $x + y + 3 = 0$
(B) $x - y - 3 = 0$
(C) $x + y - 3 = 0$
(D) $x - y + 3 = 0$

Answer: (C) $x + y - 3 = 0$ · The council's preliminary key

Q316 AP EAPCET 2023 · 16 May · Shift 2 MCQ

Let the curve $x^2 + 2y^2 = 2$ intersect the line $x + y = 1$ at two points P and Q and O be the origin. If θ is the acute angle between the lines OP and OQ, then $\tan\theta =$

(A) $\frac{1}{4}$
(B) 4
(C) $\sqrt{3}$
(D) $\frac{1}{\sqrt{3}}$

Answer: (B) 4 · The council's preliminary key

Q317 AP EAPCET 2023 · 15 May · Shift 1 MCQ

The locus of a point which is at a distance of 2 units from the line $2x - 3y + 4 = 0$ and at a distance of $\sqrt{13}$ units from a point $(5, 0)$, is

(A) $8x^2 + 12xy + 56x - 24y + 84 = 0$
(B) $12xy - 5y^2 - 56x + 24y + 84 = 0$
(C) $8x^2 + 12xy + y^2 - 56x + 24y + 84 = 0$
(D) $8x^2 + 12xy - 7y^2 - 56x + 24y + 84 = 0$

Answer: (B) $12xy - 5y^2 - 56x + 24y + 84 = 0$ · The council's preliminary key

Q318 AP EAPCET 2023 · 15 May · Shift 1 MCQ

The combined equation of the lines passing through the point $(3, 4)$ and each making an angle 45° with the line $x + y + 1 = 0$ is

(A) $xy - 4x - 3y + 12 = 0$
(B) $(3x - 2y - 1)(x - 2y + 2) = 0$
(C) $(3x + 2y - 17)(x + 2y - 11) = 0$
(D) $xy - 4x + 3y + 12 = 0$

Answer: (A) $xy - 4x - 3y + 12 = 0$ · The council's preliminary key

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Q319 AP EAPCET 2023 · 15 May · Shift 1 MCQ

The equal sides of an isosceles triangle are given by equations $7x - y + 3 = 0$ and $x + y - 3 = 0$. If the slope m of the third side is an integer, then $m =$

(A) -3
(B) 3
(C) 4
(D) -1

Answer: (A) -3 · The council's preliminary key

Q320 AP EAPCET 2023 · 15 May · Shift 1 MCQ

In ΔABC the coordinates of the vertex A are $(-3, 1)$. If the equation of the median through B is $2x + y - 3 = 0$ and the equation of the bisector of angle C is $7x - 4y - 1 = 0$, then the equation of the side BC is

(A) $7x - 3y = 6$
(B) $18x - y = 49$
(C) $15x + y = 50$
(D) $4x - y = 7$

Answer: (B) $18x - y = 49$ · The council's preliminary key

Q321 AP EAPCET 2023 · 15 May · Shift 1 MCQ

If the lines given by $(x^2 + y^2)\sin^2\alpha = (x\cos\alpha - y\sin\alpha)^2$ are perpendicular to each other, then $\sin^2\alpha + \tan^2\alpha =$

(A) $\frac{15}{4}$
(B) 0
(C) $\frac{3}{2}$
(D) $\frac{7}{12}$

Answer: (C) $\frac{3}{2}$ · The council's preliminary key

Q322 AP EAPCET 2023 · 15 May · Shift 1 MCQ

If the area of the triangle formed by the lines $y = x + c$ and $2x^2 + 5xy + 3y^2 = 0$ is $\frac{1}{20}$ sq. units, then $c =$

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(A) ± 1
(B) $\pm\sqrt{2}$
(C) ± 3
(D) $\pm\sqrt{3}$

Answer: (A) ± 1 · The council's preliminary key

Q323 AP EAPCET 2023 · 15 May · Shift 2 MCQ

Let $P=(-1,0)$, $Q=(0,0)$ and $R=(3,3\sqrt{3})$ be three points. Then the equation of the bisector of the $\angle PQR$ is

(A) $\sqrt{3}x+y=0$
(B) $x+\frac{\sqrt{3}}{2}y=0$
(C) $\frac{-\sqrt{3}}{2}x+y=0$
(D) $x+\sqrt{3}y=0$

Answer: (A) $\sqrt{3}x+y=0$ · The council's preliminary key

Q324 AP EAPCET 2023 · 15 May · Shift 2 MCQ

The diagonals AC and BD of a rhombus ABCD intersect at the point $(3,4)$. If $BD=2\sqrt{2}$, $A=(1,2)$, $B=(\alpha,\beta)$, $D=(\gamma,\delta)$ and $\alpha<\delta<\gamma<\beta$, then $\beta+\gamma-\delta=$

(A) 0
(B) α
(C) 2α
(D) 3α

Answer: (D) 3α · The council's preliminary key

Q325 AP EAPCET 2023 · 15 May · Shift 2 MCQ

The lines $p(p^2+1)x-y+q=0$ and $(p^2+1)^2x+(p^2+1)y+2q=0$ are perpendicular to a line L for

(A) exactly one value of p
(B) exactly two values of p
(C) more than two values of p
(D) no value of p

Answer: (A) exactly one value of p · The council's preliminary key

Q326 AP EAPCET 2023 · 15 May · Shift 2 MCQ

If $2x^2-3xy+y^2=0$ represents two sides of a triangle and $x+y-1=0$ is its third side, then the distance between the orthocenter and the circumcentre of that triangle is

(A) $\frac{\sqrt{5}}{6}$
(B) $\frac{5}{\sqrt{3}}$
(C) $\frac{6}{\sqrt{5}}$
(D) $\frac{\sqrt{3}}{5}$

Answer: (A) $\frac{\sqrt{5}}{6}$ · The council's preliminary key

Q327 AP EAPCET 2023 · 15 May · Shift 2 MCQ

Assertion (A) : The difference of the slopes of the lines represented by

$$y^2 - 2xy\sec^2\alpha + (3+\tan^2\alpha)(-1+\tan^2\alpha)x^2 = 0 \text{ is } 4$$

Reason (R) : The difference of the slopes represented by

$$ax^2 + 2hxy + by^2 = 0 \text{ is } \frac{2\sqrt{h^2-ab}}{|b|}$$

(A) Both A and R are true and R is the correct explanation of A
(B) Both A and R are true but R is not correct explanation of A
(C) A is true but R is false
(D) A is false but R is true

Answer: (A) Both A and R are true and R is the correct explanation of A · The council's preliminary key

Q328 TS EAMCET 2023 · 14 May · Shift 1 MCQ

If a point P moves so that the distance from $(0,2)$ to P is $\frac{1}{\sqrt{2}}$ times the distance of P from $(-1,0)$, then the locus of the point P is

(A) a circle with centre $(1,4)$ and radius 10 units
(B) a circle with centre $(-1,-4)$ and radius $\sqrt{10}$ units
(C) a circle with centre $(1,4)$ and radius $\sqrt{10}$ units
(D) a parabola with focus at $(1,4)$ and length of latus rectum 10 units

Answer: (C) a circle with centre $(1,4)$ and radius $\sqrt{10}$ units · The council's preliminary key

Q329 TS EAMCET 2023 · 14 May · Shift 1 MCQ

Let d be the distance between the parallel lines $3x-2y+5=0$ and $3x-2y+5+2\sqrt{13}=0$. Let $L_1 \equiv 3x-2y+k_1=0\ (k_1>0)$ and $L_2 \equiv 3x-2y+k_2=0\ (k_2>0)$ be two lines that are at the distance of $\frac{4d}{\sqrt{13}}$ and $\frac{3d}{\sqrt{13}}$ from the line $3x-2y+5=0$. Then the combined equation of the lines $L_1=0$ and $L_2=0$ is

(A) $(3x-2y)^2+24(3x-2y)+143=0$
(B) $(3x-2y)^2+8(3x-2y)+33=0$
(C) $(3x-2y)^2+12(3x-2y)+13=0$
(D) $(3x-2y)^2+12(3x-2y)+1=0$

Answer: (A) $(3x-2y)^2+24(3x-2y)+143=0$ · The council's preliminary key

Q330 TS EAMCET 2023 · 14 May · Shift 1 MCQ

If (h, k) is the image of the point $(3,-4)$ with respect to the line $2x-3y-5=0$ and (l,m) is the foot of the perpendicular from (h,k) on to the line $3x+2y+12=0$, then $lh+mk+1=$

(A) 5
(B) $\frac{-1}{34}$
(C) $\frac{-3}{34}$
(D) -3

Answer: (A) 5 · The council's preliminary key

Q331 TS EAMCET 2023 · 14 May · Shift 1 MCQ

A straight line parallel to the line $y=\sqrt{3}x$ passes through $Q(2,3)$ and cuts the line $2x+4y-27=0$ at P. Then the length of the line segment PQ is

(A) $2\sqrt{3}+1$
(B) $\sqrt{3}+1$
(C) $2\sqrt{3}-1$
(D) $\sqrt{3}-1$

Answer: (C) $2\sqrt{3}-1$ · The council's preliminary key

Q332 TS EAMCET 2023 · 14 May · Shift 1 MCQ

If a line $ax+2y=k$ forms a triangle of area 3 sq. units with the coordinate axis and is perpendicular to the line $2x-3y+7=0$, then the product of all the possible values of k is

(A) -36
(B) 36
(C) -64
(D) 64

Answer: (A) -36 · The council's preliminary key

Q333 TS EAMCET 2023 · 14 May · Shift 1 MCQ

The orthocenter of the triangle whose sides are given by $x+y+10=0$, $x-y-2=0$ and $2x+y-7=0$ is

(A) $(-4,-3)$
(B) $(-4,-6)$
(C) $(4,\ 6)$
(D) $(3,\ 6)$

Answer: (B) $(-4,-6)$ · The council's preliminary key

Q334 TS EAMCET 2023 · 14 May · Shift 1 MCQ

For $l \in \mathbb{R}$, the equation $(2l-3)x^2+2lxy-y^2=0$ represents a pair of distinct lines

(A) only when $l=0$
(B) for all values of $l \in (-3,1)$
(C) for all values of $l \in \mathbb{R}-(0,1)$
(D) for all values of $l \in \mathbb{R}-[-3,1]$

Answer: (D) for all values of $l \in \mathbb{R}-[-3,1]$ · The council's preliminary key

Q335 TS EAMCET 2023 · 14 May · Shift 2 MCQ

A straight line passing through a fixed point $(-3,4)$ intersects the coordinate axes at A and B. If 'O' is the origin and OABC forms a rectangle, then the locus of C is

(A) $xy+3x-4y=0$
(B) $xy-3x+4y=0$
(C) $xy-3x-4y=0$
(D) $xy+3x+4y=0$

Answer: (A) $xy+3x-4y=0$ · The council's preliminary key

Q336 TS EAMCET 2023 · 14 May · Shift 2 MCQ

When the origin is shifted to the point P by translation of axes, the equation $2x^2+y^2-4x+4y=0$ is transformed to $2x^2+y^2-8x+8y+18=0$. Then the transformed equation of the straight line $x+2y+2=0$ if the origin is shifted to the same point P is

(A) $x+2y-1=0$
(B) $x+2y-3=0$
(C) $x+2y+7=0$
(D) $x+2y+5=0$

Answer: (D) $x+2y+5=0$ · The council's preliminary key

Q337 TS EAMCET 2023 · 14 May · Shift 2 MCQ

If the Circumcenter of the triangle formed by the points $A(a,3)$, $B(b,5)$ and $C(a,b)$ is $(1,1)$, then out of all the possible coordinates of C the sum of the absolute values of the distinct coordinates of C is

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(A) 8
(B) 9
(C) 12
(D) 4

Answer: (B) 9 · The council's preliminary key

Q338 TS EAMCET 2023 · 14 May · Shift 2 MCQ

If the lines $x + y - 1 = 0$, $kx + 2y + 1 = 0$ and $4x + 2ky + 7 = 0$ are concurrent, then $k =$

(A) 2
(B) $\frac{13}{2}$
(C) $\frac{-13}{2}$
(D) -2

Answer: (C) $\frac{-13}{2}$ · The council's preliminary key

Q339 TS EAMCET 2023 · 14 May · Shift 2 MCQ

If α, β $(\alpha > \beta)$ are two values of k such that the equations $2x + (3 - 2k)y + (2k + 1) = 0$ and $kx + (k - 1)y - 4 = 0$ represent two perpendicular lines, then $\alpha^2 + 2\beta =$

(A) 1
(B) $\frac{7}{4}$
(C) 7
(D) 10

Answer: (D) 10 · The council's preliminary key

Q340 TS EAMCET 2023 · 14 May · Shift 2 MCQ

If $k = \frac{a+b}{ab}$ is a non-zero constant then the point which lies on the straight line $\frac{x}{a} + \frac{y}{b} = 1$ is

(A) (k, k)
(B) $\left(k, \frac{1}{k}\right)$
(C) $\left(\frac{1}{k}, k\right)$
(D) $\left(\frac{1}{k}, \frac{1}{k}\right)$

Answer: (D) $\left(\frac{1}{k}, \frac{1}{k}\right)$ · The council's preliminary key

Q341 TS EAMCET 2023 · 14 May · Shift 2 MCQ

The point of concurrence of all the chords of the curve $3x^2 - y^2 - 2x + 4y = 0$ which subtend a right angle at the origin is

(A) $(1, 2)$
(B) $(1, -2)$
(C) $(-1, 2)$
(D) $(-1, -2)$

Answer: (B) $(1, -2)$ · The council's preliminary key

Q342 TS EAMCET 2023 · 13 May · Shift 1 MCQ

Let P be the point to which origin has to be shifted by the translation of axes so as to remove the first degree terms from the equation $3x^2 + y^2 - 6x + 4y + 4 = 0$.

If the origin is shifted to P by the translation of axes, then the transformed equation of $2x^2 + 3xy - 5y^2 + 2x - 23y - 24 = 0$ is

(A) $x^2 + 4xy - 3y^2 - 4x + 20y + 23 = 0$
(B) $2x^2 - 3xy + 5y^2 = 0$
(C) $2x^2 + 3xy - 5y^2 = 0$
(D) $2x^2 + 3xy - 5y^2 - 13 = 0$

Answer: (C) $2x^2 + 3xy - 5y^2 = 0$ · The council's preliminary key

Q343 TS EAMCET 2023 · 13 May · Shift 1 MCQ

If α is the angle made by the perpendicular drawn from origin to the line $3x - 4y + 5 = 0$ with positive X- axis in positive direction and $ax + by = 1$ is the equation of a line passing through the point $(1, -1)$ with $\tan\alpha$ as its slope, then $a + ab + b =$

(A) 11
(B) 13
(C) 17
(D) 19

Answer: (D) 19 · The council's preliminary key

Q344 TS EAMCET 2023 · 13 May · Shift 1 MCQ

If L_1 is a line passing through the point $P(4, -3)$ and perpendicular to the line $3x - 4y + k = 0$, then the distance of P from the line $5x - 3y - 2 = 0$ measured along the line L_1 is

(A) 5
(B) $\sqrt{13}$
(C) $\sqrt{41}$
(D) 13

Answer: (A) 5 · The council's preliminary key

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Q345 TS EAMCET 2023 · 13 May · Shift 1 MCQ

Let the line L_1 passing through the point of intersection of the lines $2x + 3y - 5 = 0$ and $4x - 5y + 7 = 0$ divide the line segment joining the points $(2, 3)$ and $(1, -1)$ in the ratio $2 : 1$. If the equation of L_1 is $ax + by = 1$, then $33(a - b) =$

(A) -1
(B) 0
(C) 1
(D) 2

Answer: (C) 1 · The council's preliminary key

Q346 TS EAMCET 2023 · 13 May · Shift 1 MCQ

Let ABC be a triangle and $A = (1, 2)$. If $x - 3y - 5 = 0$ and $x + 5y - 9 = 0$ are the perpendicular bisectors of the sides AB and BC respectively, then the length of the side AC is

(A) $\sqrt{34}$
(B) $2\sqrt{26}$
(C) $2\sqrt{10}$
(D) $4\sqrt{2}$

Answer: (D) $4\sqrt{2}$ · The council's preliminary key

Q347 TS EAMCET 2023 · 13 May · Shift 1 MCQ

If $ax^2 - xy - 3y^2 - 5x + 20y + c = 0$ represents a pair of lines passing through the point $(2, 3)$, then $a - c =$

(A) -23
(B) 27
(C) 23
(D) -27

Answer: (B) 27 · The council's preliminary key

Q348 TS EAMCET 2023 · 13 May · Shift 2 MCQ

Let $A = (1, 2)$, $B = (2, 1)$, $C = (-1, -1)$ be three points. If P is a point such that the area of the quadrilateral PABC is twice the area of the triangle PAB, then the equation of the locus of P is

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(A) $8x^2 - 14xy + 3y^2 - 18x + 22y + 7 = 0$
(B) $9x^2 - 12xy + 4y^2 - 24x + 16y + 16 = 0$
(C) $x^2 + 2xy + y^2 - 6x - 6y + 9 = 0$
(D) $x^2 - 4xy + 8y - 4 = 0$

Answer: (B) $9x^2 - 12xy + 4y^2 - 24x + 16y + 16 = 0$ · Checked by our team

Q349 TS EAMCET 2023 · 13 May · Shift 2 MCQ

When the origin is shifted to the point (h, k) by translating the coordinate axes, the equation $S \equiv 2x^2 - xy + y^2 + 2x + 3y + 1 = 0$ is changed to $S' \equiv ax^2 + 2hxy + by^2 - 3 = 0$. Again by rotating the coordinate axes about the new origin through the angle θ in the positive direction, $S' = 0$ is changed to $Ax^2 + By^2 + C = 0$. Then $h + k + \tan 2\theta =$

(A) -4
(B) 0
(C) 1
(D) -1

Answer: (A) -4 · The council's preliminary key

Q350 TS EAMCET 2023 · 13 May · Shift 2 MCQ

Two points $P(a, 2)$ and $Q(1, b)$ lie on either side of the line $2x - 3y + 1 = 0$. If P is the point of intersection of the lines $4x + 3y + k = 0$ and $3x + 4y + k = 0$, then the range of b is

(A) $(-\infty, 3)$
(B) $(-\infty, 1)$
(C) $(1, \infty)$
(D) $(3, \infty)$

Answer: (B) $(-\infty, 1)$ · The council's preliminary key

Q351 TS EAMCET 2023 · 13 May · Shift 2 MCQ

Let the angle between the lines $x - 2y + 3 = 0$ and $kx - y + 2 = 0$ be 45°. If $k_1, k_2 (k_1 > k_2)$ are two distinct real values of k, then $k_1 - 2 =$

(A) k_2
(B) $-k_2$
(C) $-3k_2$
(D) $3k_2$

Answer: (C) $-3k_2$ · The council's preliminary key

Q352 TS EAMCET 2023 · 13 May · Shift 2 MCQ

If the lines $4x + 3y - k = 0$, $2x + y + 3 = 0$ and $3x + 2y + k = 0$ are concurrent, then the perpendicular distance from the point of concurrency of these lines to the line $3x + 4y + 2 = 0$ is

(A) $\frac{3}{5}$
(B) 1
(C) $\frac{13}{5}$
(D) 3

Answer: (D) 3 · The council's preliminary key

Q353 TS EAMCET 2023 · 13 May · Shift 2 MCQ

Let A(1,3) and B(2,5) be two points and C(h, k) be a point such that BC is perpendicular to AC. If $\angle CAB = \angle CBA$, then h =

(A) $\frac{24}{5}$ or $\frac{7}{2}$
(B) $\frac{2}{5}$ or $\frac{7}{2}$
(C) $\frac{1}{2}$ or $\frac{5}{2}$
(D) $\frac{24}{5}$ or $\frac{2}{5}$

Answer: (C) $\frac{1}{2}$ or $\frac{5}{2}$ · The council's preliminary key

Q354 TS EAMCET 2023 · 13 May · Shift 2 MCQ

Let the line $2x - 3y - 1 = 0$ intersect the curve $x^2 + 2xy + 5y^2 + 2x + 3y - 1 = 0$ in distinct points A and B. If 'O' is the origin, then $\cos \angle AOB =$

(A) $\frac{1}{2}$
(B) $\frac{3\sqrt{2}}{5}$
(C) 0
(D) $\frac{3\sqrt{2}}{7}$

Answer: (D) $\frac{3\sqrt{2}}{7}$ · The council's preliminary key

Q355 TS EAMCET 2023 · 12 May · Shift 1 MCQ

If t is a parameter, $A = (a\sec t, b\tan t)$, $B = (-a\tan t, b\sec t)$ and $O = (0, 0)$ then the locus of the centroid of ΔOAB is

(A) $9xy = ab$
(B) $xy = 9ab$
(C) $x^2 - 9y^2 = a^2 - b^2$
(D) $x^2 - y^2 = \frac{1}{9}(a^2 - b^2)$

Answer: (A) $9xy = ab$ · The council's preliminary key

Q356 TS EAMCET 2023 · 12 May · Shift 1 MCQ

The angle by which the coordinate axes are to be rotated about the origin so that the transformed equation of $\sqrt{3}x^2 + (\sqrt{3}-1)xy - y^2 = 0$ would be free from xy term is

(A) 45°
(B) 22.5°
(C) 15°
(D) 7.5°

Answer: (D) 7.5° · The council's preliminary key

Q357 TS EAMCET 2023 · 12 May · Shift 1 MCQ

If the slope of a straight line passing through $A(3,2)$ is $3/4$, then the coordinates of the two points on the same line that are 5 units away from A are

(A) $(-7,5),(1,-1)$
(B) $(7,5),(-1,-1)$
(C) $(6,9),(-2,3)$
(D) $(6,3),(-2,-3)$

Answer: (B) $(7,5),(-1,-1)$ · The council's preliminary key

Q358 TS EAMCET 2023 · 12 May · Shift 1 MCQ

The range of 'a' so that $a^2x^2 + 2xy + 4y^2 = 0$ represents two distinct lines is

(A) $a > \frac{1}{2}$ or $a < \frac{-1}{2}$
(B) $\frac{-1}{2} \le a \le \frac{1}{2}$
(C) $\frac{-1}{2} < a < \frac{1}{2}$
(D) $a \ge \frac{1}{2}$ or $a \le \frac{-1}{2}$

Answer: (C) $\frac{-1}{2} < a < \frac{1}{2}$ · The council's preliminary key

Q359 TS EAMCET 2023 · 12 May · Shift 1 MCQ

If each of the points $(a,4)$, $(-2,b)$ lies on the line joining the points $(2,-1)$ and $(5,-3)$ then the point (a,b) lies on the line

(A) $6x + 6y - 25 = 0$
(B) $x + 3y + 1 = 0$
(C) $2x + 6y + 1 = 0$
(D) $2x + 3y - 5 = 0$

Answer: (C) $2x + 6y + 1 = 0$ · The council's preliminary key

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Q360 TS EAMCET 2023 · 12 May · Shift 1 MCQ

The image of every point lying on the curve $x^2 + y^2 = 1$ in the line $x + y = 1$ satisfies the equation

(A) $x^2 + y^2 + 2x + 2y + 1 = 0$
(B) $x^2 + y^2 - 2x + 2y + 1 = 0$
(C) $x^2 + y^2 + 2x - 2y + 1 = 0$
(D) $x^2 + y^2 - 2x - 2y + 1 = 0$

Answer: (D) $x^2 + y^2 - 2x - 2y + 1 = 0$ · The council's preliminary key

Q361 TS EAMCET 2023 · 12 May · Shift 2 MCQ

A line L has intercepts a and b on the coordinate axes. When the coordinate axes are rotated through an angle α keeping the origin fixed, the same line L has intercepts p and q on the new axes. Then

(A) $a^2 + b^2 = p^2 + q^2$
(B) $a^2 + p^2 = b^2 + q^2$
(C) $\frac{1}{a^2} + \frac{1}{p^2} = \frac{1}{b^2} + \frac{1}{q^2}$
(D) $\frac{1}{a^2} + \frac{1}{b^2} = \frac{1}{p^2} + \frac{1}{q^2}$

Answer: (D) $\frac{1}{a^2} + \frac{1}{b^2} = \frac{1}{p^2} + \frac{1}{q^2}$ · The council's preliminary key

Q362 TS EAMCET 2023 · 12 May · Shift 2 MCQ

Two lines L_1 and L_2 passing through the point $P(1, 2)$ cut the line $x + y = 4$ at a distance of $\frac{\sqrt{6}}{3}$ units from P. Then the angles made by L_1, L_2 with positive X-axis are

(A) $\frac{\pi}{3}, \frac{\pi}{6}$
(B) $\frac{\pi}{8}, \frac{3\pi}{8}$
(C) $\frac{\pi}{12}, \frac{5\pi}{12}$
(D) $\frac{\pi}{4}, \frac{\pi}{8}$

Answer: (C) $\frac{\pi}{12}, \frac{5\pi}{12}$ · The council's preliminary key

Q363 TS EAMCET 2023 · 12 May · Shift 2 MCQ

A pair of straight lines drawn through the origin forms an isosceles triangle right angled at the origin with the line $2x + 3y = 6$. The area (in sq. units) of the triangle so formed is

(A) $\frac{36}{13}$
(B) $\frac{32}{13}$
(C) $\frac{28}{9}$
(D) $\frac{26}{9}$

Answer: (A) $\frac{36}{13}$ · The council's preliminary key

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Q364 TS EAMCET 2023 · 12 May · Shift 2 MCQ

The equation of the straight line passing through the point $(3, 2)$ and inclined at an angle of 60° with the line $\sqrt{3}x + y = 1$ is

(A) $\sqrt{3}x + y - (2 + 3\sqrt{3}) = 0$
(B) $\sqrt{3}x - y + (2 - 3\sqrt{3}) = 0$
(C) $-\sqrt{3}x + y - (2 - 3\sqrt{3}) = 0$
(D) $-\sqrt{3}x + y + (2 - 3\sqrt{3}) = 0$

Answer: (B) $\sqrt{3}x - y + (2 - 3\sqrt{3}) = 0$ · The council's preliminary key

Q365 TS EAMCET 2023 · 12 May · Shift 2 MCQ

An equilateral triangle is constructed between the lines $\sqrt{3}x + y - 6 = 0$ and $\sqrt{3}x + y + 9 = 0$ with base on one line and vertex on the other. The area (in sq. units) of the triangle so formed is

(A) $\frac{175}{6\sqrt{3}}$
(B) $\frac{225}{2\sqrt{3}}$
(C) $\frac{225}{4\sqrt{3}}$
(D) $\frac{245}{4\sqrt{2}}$

Answer: (C) $\frac{225}{4\sqrt{3}}$ · The council's preliminary key

Q366 TS EAMCET 2023 · 12 May · Shift 2 MCQ

If θ is the acute angle between the lines joining the origin to the points of intersection of the curve $x^2 + xy + y^2 + x + 3y + 1 = 0$ and the straight line $x + y + 2 = 0$ then $\cos\theta =$

(A) $\frac{1}{\sqrt{3}}$
(B) $\frac{1}{\sqrt{5}}$
(C) $\frac{3}{5}$
(D) $\frac{4}{5}$

Answer: (B) $\frac{1}{\sqrt{5}}$ · The council's preliminary key

Q367 TS EAMCET 2022 · 20 Jul · Shift 1 MCQ

Let ABC be a triangle. Let a point P divide AB in the ratio 1 : 2 internally and a point Q divide BC in the ratio 1 : 2 internally. Let D be the point of intersection of AQ and CP. If the area of the triangle ABC is k square units then the area of the triangle BCD in sq. units is

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(A) $\frac{4k}{7}$
(B) $\frac{2k}{7}$
(C) $\frac{7k}{2}$
(D) $\frac{7k}{4}$

Answer: (A) $\frac{4k}{7}$ · The council's preliminary key

Q368 TS EAMCET 2022 · 20 Jul · Shift 1 MCQ

B(2,3), C(5,−2), D(1,−1) are three points. If A is a variable point such that the area of the quadrilateral ABCD is 10 sq. units, then the locus of A is

(A) $(x-4y+42)(x-4y+2)=0$
(B) $(x-4y-42)(x-4y-2)=0$
(C) $(4x-y+42)(4x-y+2)=0$
(D) $(4x-y-42)(4x-y-2)=0$

Answer: (D) $(4x-y-42)(4x-y-2)=0$ · The council's preliminary key

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Q369 TS EAMCET 2022 · 20 Jul · Shift 1 MCQ

A line makes intercepts 5 and 7 on the coordinate axes. The axes are rotated through an angle θ in the positive direction about the origin so that the line makes equal intercepts on the new axes, then $|\tan\theta| =$

(A) 6
(B) $\frac{1}{6}$
(C) $\frac{12}{35}$
(D) $\frac{35}{12}$

Answer: (B) $\frac{1}{6}$ · The council's preliminary key

Q370 TS EAMCET 2022 · 20 Jul · Shift 1 MCQ

$L \equiv 7x-y+8=0$ is one of the diagonals of a square for which $(-4,5),(3,4)$ are two vertices. Then the coordinates of the two vertices lying on the diagonal $L=0$ are

(A) $(0,8),(-1,1)$
(B) $(-1,1),(0,8)$
(C) $(-2,-6),(1,15)$
(D) $(1,3),(-2,6)$

Options (1) or (2) were accepted. More than one answer was accepted. · The council's preliminary key

Q371 TS EAMCET 2022 · 20 Jul · Shift 1 MCQ

The locus of the image of a variable point $(\alpha, 2\alpha - 1)$ with respect to the line $3x - 2y + 4 = 0$, is

(A) $22(13x + 36) = 19(13y - 11)$
(B) $30(13x + 36) = 19(13y + 37)$
(C) $22(13x + 36) = 7(13y + 11)$
(D) $22(13x - 36) = 30(13y - 11)$

Answer: (A) $22(13x + 36) = 19(13y - 11)$ · The council's preliminary key

Q372 TS EAMCET 2022 · 20 Jul · Shift 1 MCQ

Let M be the foot of the perpendicular drawn from the point $(5, -7)$ to the line $3x - 5y + 1 = 0$. Then the perpendicular distance from M to the line $2x + 5y - 3 = 0$ is

(A) $\frac{1}{2\sqrt{29}}$
(B) $\frac{9}{2\sqrt{29}}$
(C) $\frac{13}{2\sqrt{29}}$
(D) $\frac{3}{2\sqrt{29}}$

Answer: (A) $\frac{1}{2\sqrt{29}}$ · The council's preliminary key

Q373 TS EAMCET 2022 · 20 Jul · Shift 1 MCQ

If P is a point equidistant from all the vertices $A(-1, 3), B(3, 5), C(5, 7)$ of a triangle ABC then PA =

(A) 11
(B) $\sqrt{140}$
(C) 13
(D) $\sqrt{130}$

Answer: (D) $\sqrt{130}$ · The council's preliminary key

Q374 TS EAMCET 2022 · 20 Jul · Shift 1 MCQ

4 different pairs of lines are given in List I and the cosine of the angle between every pair of lines is given in List II.
Match the following:
List-I: A) $5x^2 + 2\sqrt{7}xy - y^2 = 0$ B) $x^2 + \sqrt{11}xy + 2y^2 = 0$ C) $x^2 + 2\sqrt{2}xy + y^2 = 0$ D) $3x^2 + 4\sqrt{2}xy + y^2 = 0$
List-II: I) $\frac{\sqrt{3}}{2}$ II) $\left(\frac{1}{2\sqrt{3}}\right)$ III) $\frac{1}{2}$ IV) $\left(\frac{2}{3}\right)$ V) $\frac{1}{\sqrt{2}}$
The correct match is

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(A) A-III, B-I, C-V, D-II
(B) A-III, B-I, C-IV, D-V
(C) A-III, B-I, C-V, D-IV
(D) A-III, B-V, C-II, D-IV

Answer: (C) A-III, B-I, C-V, D-IV · The council's preliminary key

Q375 TS EAMCET 2022 · 20 Jul · Shift 1 MCQ

If $ax^2 + 6xy - 2y^2 = 0$ represents a pair of perpendicular lines and $9x^2 + 2hxy + 4y^2 = 0$ $(h > 0)$ represents a pair of coincident lines then $h =$

(A) $3a$
(B) $2a$
(C) a
(D) $4a$

Answer: (A) $3a$ · The council's preliminary key

Q376 TS EAMCET 2022 · 20 Jul · Shift 1 MCQ

The line $x + 2y = k$ meets the curve $2x^2 - 2xy + 3y^2 + 2x - y - 1 = 0$ at two points A and B. Let O be the origin. If the line segments OA and OB are perpendicular to each other, then $k =$

(A) ± 1
(B) ± 2
(C) ± 3
(D) 4

Answer: (A) ± 1 · The council's preliminary key

Q377 TS EAMCET 2022 · 20 Jul · Shift 2 MCQ

A(-4, 0) and B(4, 0) are two fixed points. C and D are two points on Y-axis such that CD = 4 and C is a point below D. Then the locus of the point of intersection of the lines AC and BD is

(A) $x^2 - y^2 - xy = 0$
(B) $x^2 + 2xy - 16 = 0$
(C) $(x + y)^2 - 16 = 0$
(D) $2xy = 16 + y^2 + x^2$

Answer: (B) $x^2 + 2xy - 16 = 0$ · The council's preliminary key

Q378 TS EAMCET 2022 · 20 Jul · Shift 2 MCQ

By rotating the axes through an angle of 30° in the anti-clockwise direction about the origin, the equation $4x^2 + 12xy + 9y^2 + 6x + 9y + 2 = 0$ becomes $ax^2 + 2hxy + by^2 + 2gx + 2fy + c = 0$ then

(A) $a = 21 - 6\sqrt{3}$

(B) $g/f = \dfrac{3 + 2\sqrt{3}}{3\sqrt{3} - 2}$

(C) $b = 31 + 6\sqrt{3}$

(D) $c = 6$

Answer: (B) $g/f = \dfrac{3 + 2\sqrt{3}}{3\sqrt{3} - 2}$ · The council's preliminary key

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Q379 TS EAMCET 2022 · 20 Jul · Shift 2 MCQ

In an isosceles triangle the ends of its base are $(2a, 0), (0, a)$ and one of its two other sides is a horizontal line other than X-axis. If the third vertex is (x_1, y_1) then $x_1 + y_1 =$

(A) $\dfrac{9a}{2}$

(B) $3a$

(C) $\dfrac{9a}{4}$

(D) $5a$

Answer: (C) $\dfrac{9a}{4}$ · The council's preliminary key

Q380 TS EAMCET 2022 · 20 Jul · Shift 2 MCQ

If the lines $L_1 \equiv x - 2y + 3 = 0,\ L_2 \equiv 2x + y + 1 = 0$ and $L_3 \equiv 3x + y + c = 0$ are concurrent and θ is the acute angle between the lines $L_1 = 0$ and $L_3 = 0$, then $\tan\theta =$

(A) $c + 2$

(B) $c - 5$

(C) $c + 5$

(D) $c - 2$

Answer: (C) $c + 5$ · The council's preliminary key

Q381 TS EAMCET 2022 · 20 Jul · Shift 2 MCQ

If the lengths of the perpendiculars drawn from a point (a, b) to the lines $2x + 3y + 4 = 0$ and $3x - 2y + 4 = 0$ are same, then the point (a, b) lies on the line

(A) $x - 5y + 8 = 0$ or $5x + y = 0$

(B) $x + 5y + 8 = 0$ or $5x - y + 8 = 0$

(C) $x - 5y = 0$ or $5x + y + 8 = 0$

(D) $x + 5y = 0$ or $5x - y + 8 = 0$

Answer: (C) $x - 5y = 0$ or $5x + y + 8 = 0$ · The council's preliminary key

Q382 TS EAMCET 2022 · 20 Jul · Shift 2 MCQ

If $3x+6y+2=0,\ x+y+1=0,\ 2x-y+3=0$ are three given lines then the point $\left(\frac{-4}{3},\frac{1}{3}\right)$ is

(A) the orthocentre of the triangle formed by the lines
(B) the point of concurence of the lines
(C) the circumcentre of the triangle formed by the lines
(D) the incentre of the triangle formed by the lines

Answer: (B) the point of concurence of the lines · The council's preliminary key

Q383 TS EAMCET 2022 · 20 Jul · Shift 2 MCQ

If θ is the acute angle between the pair of lines $12x^2+2hxy+7y^2=0$ and $\tan\theta=\frac{8}{19}$, then $h=$

(A) ± 6
(B) ± 7
(C) ± 8
(D) ± 10

Answer: (D) ± 10 · The council's preliminary key

Q384 TS EAMCET 2022 · 20 Jul · Shift 2 MCQ

The number of real values of α for which the pair of lines represented by $(\alpha^2+12|\alpha|)x^2+6xy+(18-21|\alpha|)y^2=0$ are at right angles to each other, is

(A) 0
(B) 1
(C) 2
(D) 4

Answer: (D) 4 · The council's preliminary key

Q385 TS EAMCET 2022 · 20 Jul · Shift 2 MCQ

The line $x+2y-c=0$ meets the curve $x^2+y^2-3x-6y+3=0$ at two points P and Q and $\angle POQ=\frac{\pi}{2}$, where O is the origin. Then, $2c^2-15c=$

(A) 15
(B) -15
(C) 2
(D) -2

Answer: (B) -15 · The council's preliminary key

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Q386 TS EAMCET 2022 · 19 Jul · Shift 1 MCQ

If the distance from a variable point P to a fixed point $A(a, 0)$ is equal to the perpendicular distance from P to the line $x + y = 0$ then the equation of the locus of P is

(A) $x^2 + y^2 - 2xy - 4ax = 0$
(B) $x^2 + y^2 - 2xy - 4ax + 2a^2 = 0$
(C) $x^2 - 4ay + y^2 = 0$
(D) $(x - a)^2 + y^2 = 4axy$

Answer: (B) $x^2 + y^2 - 2xy - 4ax + 2a^2 = 0$ · The council's preliminary key

Q387 TS EAMCET 2022 · 19 Jul · Shift 1 MCQ

The point to which the origin is to be shifted by translation of axes so that the transformed equation of $y^2 + 4y + 8x - 2 = 0$ will not contain y term and constant term is

(A) $\left(\frac{3}{4}, -2\right)$
(B) $\left(\frac{-3}{4}, -2\right)$
(C) $\left(2, \frac{3}{4}\right)$
(D) $\left(-2, \frac{-3}{4}\right)$

Answer: (A) $\left(\frac{3}{4}, -2\right)$ · The council's preliminary key

Q388 TS EAMCET 2022 · 19 Jul · Shift 1 MCQ

If the line $2x - y - 4 = 0$ divides the line segment joining the points $(2, -1)$ and $(1, -4)$ at the point (a, b) in the ratio $m : n$ then $4\left(a - b\left(\frac{m}{n}\right)^2\right) =$

(A) -5
(B) 14
(C) 11
(D) 10

Answer: (D) 10 · The council's preliminary key

Q389 TS EAMCET 2022 · 19 Jul · Shift 1 MCQ

The distance between the points of concurrency of the two families of straight lines given by $x + (5\lambda + 1)y + 1 - 3\lambda = 0$ and $(5\mu + 2)x - 3y + 3 + 6\mu = 0$ is

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(A) 4
(B) $\frac{2\sqrt{2}}{5}$
(C) $\frac{\sqrt{2}}{5}$
(D) 6

Answer: (B) $\frac{2\sqrt{2}}{5}$ · The council's preliminary key

Q390 TS EAMCET 2022 · 19 Jul · Shift 1 MCQ

Let the line L drawn perpendicular to the lines $2x - 3y + 4 = 0$ and $6x - 9y + 7 = 0$ meet them at A and B respectively. If P(1, 1) is a point on L, then the ratio in which P divides AB is

(A) $9 : 4$ internally
(B) $9 : 4$ externally
(C) $4 : 9$ internally
(D) $4 : 9$ externally

Answer: (B) $9 : 4$ **externally** · The council's preliminary key

Q391 TS EAMCET 2022 · 19 Jul · Shift 1 MCQ

The orthocentre of the triangle formed by the points $(1, 3)$, $(-3, 5)$ and $(5, -1)$ is

(A) $(-8, -10)$
(B) $(-3, 2)$
(C) $\left(-\frac{2}{3}, \frac{4}{3}\right)$
(D) $(19, 27)$

Answer: (D) $(19, 27)$ · The council's preliminary key

Q392 TS EAMCET 2022 · 19 Jul · Shift 1 MCQ

If $\alpha x^2 + 2\gamma xy + \beta y^2 = 0$ is the equation of pair of lines passing through the origin and perpendicular to the pair of lines $bhx^2 + abxy + ahy^2 = 0$ $(a \neq 0, b \neq 0)$, then $\frac{\alpha\beta}{\gamma^2} =$

(A) $\frac{h^2}{ab}$
(B) $\frac{-2h^2}{ab}$
(C) $\frac{-h^2}{ab}$
(D) $\frac{4h^2}{ab}$

Answer: (D) $\frac{4h^2}{ab}$ · The council's preliminary key

Q393 TS EAMCET 2022 · 19 Jul · Shift 1 MCQ

$\frac{x^2}{a}+\frac{xy}{h}+\frac{y^2}{b}=0\ (a\neq 0, h\neq 0, b\neq 0)$ represents two coincident lines if

(A) $h^2=ab$

(B) $4h^2=ab$

(C) $h^2=4ab$

(D) $h^2=2ab$

Answer: (B) $4h^2=ab$ · The council's preliminary key

Q394 TS EAMCET 2022 · 19 Jul · Shift 1 MCQ

If the lines joining the origin to the points of intersection of the line $x+y=k$ and the curve $x^2+y^2-2x-4y+2=0$ are at right angles then the sum of all the possible values of k is

(A) 0

(B) 1

(C) 3

(D) 5

Answer: (C) 3 · The council's preliminary key

Q395 TS EAMCET 2022 · 19 Jul · Shift 2 MCQ

If $A(1,1)$, $B(-1,1)$ and $C(-1,-1)$ are three points and a point P moves such that $PA^2=PB^2+PC^2$, then the equation of the locus of P is

(A) $x^2+y^2-6x-2y+2=0$

(B) $x^2+y^2+6x+2y+2=0$

(C) $x^2+y^2+6x-2y+2=0$

(D) $x^2+y^2+6x+2y-2=0$

Answer: (B) $x^2+y^2+6x+2y+2=0$ · The council's preliminary key

Q396 TS EAMCET 2022 · 19 Jul · Shift 2 MCQ

If $x^2=8ay$ is the transformed equation of $x^2-4y+6x+15=0$ when the origin is shifted to the point (α,β) by translation of axes, then $2\alpha+8\beta^2=$

(A) 8

(B) 18

(C) 12

(D) 16

Answer: (C) 12 · The council's preliminary key

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Q397 TS EAMCET 2022 · 19 Jul · Shift 2 MCQ

If a straight line L passing through the point $(5, -3)$ is inclined at an angle of 60° to the line $\sqrt{3}x + y - 9 = 0$ and L intersects X-axis then the equation of L is

(A) $x - \sqrt{3}y - 3 - 5\sqrt{3} = 0$
(B) $\sqrt{3}x - y - 3 - 5\sqrt{3} = 0$
(C) $\sqrt{3}x - y + 3 + 5\sqrt{3} = 0$
(D) $x - \sqrt{3}y + 3 + 5\sqrt{3} = 0$

Answer: (B) $\sqrt{3}x - y - 3 - 5\sqrt{3} = 0$ · The council's preliminary key

Q398 TS EAMCET 2022 · 19 Jul · Shift 2 MCQ

Let α, β, γ be three non-zero real constants and a, b, c be three arbitrary real numbers which satisfy $\alpha a + \beta b + \gamma c = 0$. Then the point of concurence of the family of lines $ax + by + c = 0$ is

(A) $\left(\frac{\alpha}{\beta}, \frac{\beta}{\gamma}\right)$
(B) $\left(\frac{\gamma}{\alpha}, \frac{\beta}{\alpha}\right)$
(C) $\left(\frac{\alpha}{\gamma}, \frac{\gamma}{\beta}\right)$
(D) $\left(\frac{\alpha}{\gamma}, \frac{\beta}{\gamma}\right)$

Answer: (D) $\left(\frac{\alpha}{\gamma}, \frac{\beta}{\gamma}\right)$ · The council's preliminary key

Q399 TS EAMCET 2022 · 19 Jul · Shift 2 MCQ

If the algebraic sum of the perpendicular distances from the points $(2, 0)$, $(0, 2)$ and $(1, 1)$ to a variable line is zero, then the variable line always passes through a fixed point. The coordinates of that point are

(A) $(0, 0)$
(B) $(2, 0)$
(C) $(0, 2)$
(D) $(1, 1)$

Answer: (D) $(1, 1)$ · The council's preliminary key

Q400 TS EAMCET 2022 · 19 Jul · Shift 2 MCQ

For $a, b, c \in \mathbb{R}$, if $6a^2 - 3b^2 - c^2 + 7ab - ac + 4bc = 0$ and $|a| + |b| \neq 0$, then all the lines given by $ax + by + c = 0$ are

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(A) concurrent at $(3,1)$ or $(1,3)$
(B) parallel to each other $\forall a,b,c \in \mathbb{R}$
(C) concurrent at $(-2,-3)$ or $(3,-1)$
(D) concurrent at $(2,3)$ or $(-3,1)$

Answer: (C) concurrent at $(-2,-3)$ or $(3,-1)$ · The council's preliminary key

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Q401 TS EAMCET 2022 · 19 Jul · Shift 2 MCQ

If θ is the acute angle between the pair of lines $H \equiv ax^2 - xy + by^2 = 0$, $\tan\theta = 5$ and $(1,-1)$ is a point on $H = 0$ then $a^2 + ab + b^2 =$

(A) 5
(B) 14
(C) 7
(D) 13

Answer: (C) 7 · The council's preliminary key

Q402 TS EAMCET 2022 · 19 Jul · Shift 2 MCQ

The equation of the pair of straight lines passing through the point $(2,3)$ and perpendicular to the pair of lines $3x^2 - 4xy + 5y^2 = 0$ is $ax^2 + 2hxy + by^2 + 2gx + 2fy + c = 0$ then $a + b + c + f + g + h =$

(A) 0
(B) 52
(C) 25
(D) -54

Answer: (B) 52 · The council's preliminary key

Q403 TS EAMCET 2022 · 19 Jul · Shift 2 MCQ

If $f(x,y) = 0$ is the combined equation of the lines joining the origin to the points where the line $4x - 6y - 2 = 0$ meets the curve $3x^2 - 4xy + 5y^2 - 2x + y - 6 = 0$, then $\frac{f(1,-1)}{f(-1,-1)} =$

(A) 153
(B) -153
(C) 1
(D) -1

Answer: (A) 153 · The council's preliminary key

Q404 TS EAMCET 2022 · 18 Jul · Shift 1 MCQ

Let $A(5,-3), B(3,-2), C(-1,5)$ be three points. If P is a point satisfying the condition $PA^2 + 2PB^2 = 3PC^2$, then a point that lies on the locus of P is

(A) $\left(-\frac{1}{7}, \frac{1}{2}\right)$
(B) $\left(-\frac{5}{2}, -2\right)$
(C) $\left(-\frac{2}{21}, \frac{31}{66}\right)$
(D) $\left(2, \frac{37}{22}\right)$

Answer: (D) $\left(2, \frac{37}{22}\right)$ · The council's preliminary key

Q405 TS EAMCET 2022 · 18 Jul · Shift 1 MCQ

When the coordinate axes are rotated about the origin in the positive direction through an angle $\frac{\pi}{4}$, if the equation $49x^2 + 25y^2 = 1225$ is transformed to $px^2 + qxy + ry^2 = t$ and the G.C.D of p, q, r, t is 1, then

(A) $(p - q + r - 32)^2 = 4t$
(B) $(p - q - r + 12)^2 = t$
(C) $(p + q + r - 15)^2 = t$
(D) $(-p - q + r + 13)^2 = t$

Answer: (C) $(p + q + r - 15)^2 = t$ · The council's preliminary key

Q406 TS EAMCET 2022 · 18 Jul · Shift 1 MCQ

Let the slope of a diameter AC of a circle of radius 25 units be $\frac{3}{4}$. If $(3, 2)$ is the centre of the circle, $A = (x_1, y_1)$ and $C = (x_2, y_2)$ then $\frac{x_1 x_2}{y_1 y_2} =$

(A) $\frac{-13}{23}$
(B) $\frac{13}{23}$
(C) $\frac{-23}{13}$
(D) $\frac{23}{13}$

Answer: (D) $\frac{23}{13}$ · The council's preliminary key

Q407 TS EAMCET 2022 · 18 Jul · Shift 1 MCQ

If θ is the acute angle between the lines $\frac{x}{a} + \frac{y}{b} = 1$, $\frac{x}{b} + \frac{y}{a} = 1$ then $\sin\theta =$

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(A) $\left|\frac{2ab}{a^2+b^2}\right|$
(B) $\left|\frac{a-b}{a+b}\right|$
(C) $\left|\frac{a^2-b^2}{2ab}\right|$
(D) $\left|\frac{a^2-b^2}{a^2+b^2}\right|$

Answer: (D) $\left|\frac{a^2-b^2}{a^2+b^2}\right|$ · The council's preliminary key

Q408 TS EAMCET 2022 · 18 Jul · Shift 1 MCQ

If the line $x-y+1=0$ cuts the lines $2x+2y+3=0$ and $3x+3y+2=0$ at the points A and B respectively, then $AB=$

(A) $\frac{5}{6\sqrt{2}}$
(B) $\frac{1}{6\sqrt{2}}$
(C) $\frac{5}{\sqrt{3}}$
(D) $\frac{5}{6\sqrt{3}}$

Answer: (A) $\frac{5}{6\sqrt{2}}$ · The council's preliminary key

Q409 TS EAMCET 2022 · 18 Jul · Shift 1 MCQ

If the incentre and the circumcentre of the triangle formed by the lines $x=2,\ 4x+3y+7=0$ and $y=3$ are I and S respectively, then $IS=$

(A) 5
(B) $\sqrt{5}$
(C) $4\sqrt{2}$
(D) $2\sqrt{5}$

Answer: (B) $\sqrt{5}$ · The council's preliminary key

Q410 TS EAMCET 2022 · 18 Jul · Shift 1 MCQ

$ax^2-4xy-2y^2=0$ represents a pair of lines. If θ is the angle between these lines, $\cos\theta=\frac{1}{5}$ and the possible values of 'a' are a_1 and a_2 $(a_1<a_2)$ then $a_1+3a_2=$

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(A) 11
(B) 10
(C) -5
(D) -6

Answer: (A) 11 · The council's preliminary key

Q411 TS EAMCET 2022 · 18 Jul · Shift 1 MCQ

Let L_1, L_2 be the lines represented by the equation $4x^2 - 5xy + 3y^2 = 0$. Let L_3, L_4 be two lines passing through the point $(4, 3)$ such that L_3 and L_4 are perpendicular to L_1 and L_2 respectively. If the combined equation of L_3 and L_4 is $ax^2 + 2hxy + by^2 + 2gx + 2fy + c = 0$, then $af + bg + ch =$

(A) 144
(B) 66
(C) 78
(D) 216

Answer: (D) 216 · The council's preliminary key

Q412 TS EAMCET 2022 · 18 Jul · Shift 1 MCQ

The equation $x^2 - y^2 + ax + b = 0$ represents a pair of lines for the ordered pair $(a, b) =$

(A) $(2, 6)$
(B) $(3, 4)$
(C) $(4, 8)$
(D) $(6, 9)$

Answer: (D) $(6, 9)$ · The council's preliminary key

Q413 TS EAMCET 2022 · 18 Jul · Shift 2 MCQ

If the perimeter of a triangle is 20 and two of its vertices are $(-5, 0)$ and $(6, 0)$, then the locus of the third vertex is

(A) $40x^2 - 81y^2 - 40x - 800 = 0$
(B) $40x^2 + 9y^2 - 25x + 800 = 0$
(C) $40x^2 - 9y^2 = 800$
(D) $5x^2 - 3y^2 + 3x - 4y + 25 = 0$

Answer: (A) $40x^2 - 81y^2 - 40x - 800 = 0$ · The council's preliminary key

Q414 TS EAMCET 2022 · 18 Jul · Shift 2 MCQ

The transformed equation of $3x^2 + 4xy + y^2 - 8x - 4y - 4 = 0$ is $f(X, Y) = aX^2 + 2hXY + bY^2 + c = 0$ when the origin is shifted to a new point by the translation of axes. Then $f(1, 1) =$

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(A) 0
(B) 1
(C) -1
(D) -8

Answer: (A) 0 · The council's preliminary key

Q415 TS EAMCET 2022 · 18 Jul · Shift 2 MCQ

If the line $2x - 3y + 4 = 0$ divides the line segment joining the points $A(-2, 3)$ and $B(3, -2)$ in the ratio $m : n$, then the point which divides AB in the ratio $-4m : 3n$ is

(A) $(-17, 18)$
(B) $\left(-\frac{59}{7}, \frac{66}{7}\right)$
(C) $(-5, 6)$
(D) $\left(-\frac{5}{7}, \frac{12}{7}\right)$

Answer: (A) $(-17, 18)$ · The council's preliminary key

Q416 TS EAMCET 2022 · 18 Jul · Shift 2 MCQ

If the lines $L_1 \equiv 2x + y + 3 = 0$, $L_2 \equiv kx + 2y - 3 = 0$ and $L_3 \equiv 3x - 2y + 1 = 0$ are concurrent then the cosine of the acute angle between the lines $L_2 = 0$ and $2x - 5y + 7 = 0$ is

(A) $\frac{1}{\sqrt{2}}$
(B) $\left(\frac{15}{2\sqrt{29}}\right)$
(C) $\left(\frac{25}{29}\right)$
(D) $\left(\frac{20}{29}\right)$

Answer: (D) $\left(\frac{20}{29}\right)$ · The council's preliminary key

Q417 TS EAMCET 2022 · 18 Jul · Shift 2 MCQ

If Q is the image of the point $P(1, 1)$ with respect to the straight line $x + y + 1 = 0$, then the length of the perpendicular drawn from Q to the line $3x - 4y + 3 = 0$ is

(A) $\frac{5}{2}$
(B) 2
(C) 1
(D) $\frac{1}{2}$

Answer: (C) 1 · The council's preliminary key

Q418 TS EAMCET 2022 · 18 Jul · Shift 2 MCQ

The centroid of the triangle formed by the lines $x - 3y + 3 = 0$, $x + 3y + 3 = 0$, $x + y - 1 = 0$ is

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(A) $\left(0, \frac{-1}{3}\right)$
(B) $\left(\frac{2}{3}, -1\right)$
(C) $\left(\frac{-1}{3}, 1\right)$
(D) $\left(1, \frac{-1}{3}\right)$

Answer: (A) $\left(0, \frac{-1}{3}\right)$ · The council's preliminary key

Q419 TS EAMCET 2022 · 18 Jul · Shift 2 MCQ

If the slope of one of the lines represented by $5x^2 + \frac{40}{3}xy + ky^2 = 0$ is 3, then the angle between the pair of lines is

(A) 0°
(B) $\frac{\pi}{4}$
(C) $\frac{\pi}{3}$
(D) $\frac{\pi}{2}$

Answer: (D) $\frac{\pi}{2}$ · The council's preliminary key

Q420 TS EAMCET 2022 · 18 Jul · Shift 2 MCQ

If a line L is common to the pairs of lines $6x^2 - xy - 12y^2 = 0$ and $15x^2 + 14xy - 8y^2 = 0$, then the combined equation the other two lines is

(A) $10x^2 - 19xy + 6y^2 = 0$
(B) $5x^2 - 4xy + 7y^2 = 0$
(C) $x^2 - 9xy + y^2 = 0$
(D) $3x^2 + 6xy + 11y^2 = 0$

Answer: (A) $10x^2 - 19xy + 6y^2 = 0$ · The council's preliminary key

Q421 TS EAMCET 2022 · 18 Jul · Shift 2 MCQ

If L is a line passing through the point $(-1, 1)$ and parallel to the common line of the pairs of lines $6x^2 - xy - 12y^2 = 0$ and $15x^2 + 14xy - 8y^2 = 0$, then the equation of pair of lines joining the origin to the points of intersection of the curve $2x^2 - xy - y^2 + x - y = 0$ and the line L is

(A) $x^2 - xy - y^2 = 0$
(B) $x^2 + xy - y^2 = 0$
(C) $x^2 - y^2 = 0$
(D) $2x^2 + 3xy - 6y^2 = 0$

Answer: (C) $x^2 - y^2 = 0$ · The council's preliminary key

Q422 AP EAPCET 2022 · 8 Jul · Shift 1 MCQ

In $\triangle ABC$, if A is $(1, 2)$, B and C lie on $y = x + \alpha$ (where α is variable), then the locus of the orthocenter of the triangle is

(A) $x+y-3=0$
(B) $x+y+3=0$
(C) $y=x+1$
(D) $y=x-1$

Answer: (A) $x+y-3=0$ · The council's preliminary key

Q423 AP EAPCET 2022 · 8 Jul · Shift 1 MCQ

Given two points $Q(3,4)$ and $R(1,2)$. What is the point $P(x,y)$ on the line $2x-y-1=0$ for which $PQ+PR=QR$ holds

(A) $(-3,-7)$
(B) $(-2,-5)$
(C) $(2,3)$
(D) $(4,7)$

Answer: (C) $(2,3)$ · The council's preliminary key

Q424 AP EAPCET 2022 · 8 Jul · Shift 1 MCQ

Suppose the vertices of a triangle are given by $A(0,3)$, $B(-2,0)$ and $C(6,1)$. For $(\alpha,\alpha+1)$ to lie inside the triangle, α should lie in the interval

(A) $\left(\frac{-6}{7},4\right)$
(B) $\left(\frac{4}{5},4\right)$
(C) $\left(-\infty,\frac{-6}{7}\right)\cup(4,\infty)$
(D) $\left(\frac{-6}{7},\frac{3}{2}\right)$

Answer: (D) $\left(\frac{-6}{7},\frac{3}{2}\right)$ · The council's preliminary key

Q425 AP EAPCET 2022 · 8 Jul · Shift 1 MCQ

For a triangle formed by $(0,0)$, $(4,0)$ and $(3,4)$, the orthocenter is

(A) $\left(3,\frac{3}{4}\right)$
(B) $\left(3,\frac{5}{4}\right)$
(C) $(3,12)$
(D) $(3,9)$

Answer: (A) $\left(3,\frac{3}{4}\right)$ · The council's preliminary key

Q426 AP EAPCET 2022 · 8 Jul · Shift 1 MCQ

Suppose the pairs of straight lines $x^2-2axy-y^2=0$ and $x^2-2bxy-y^2=0$ are such that each pair bisects the angles between the other two. Then $ab=$

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(A) 1
(B) -1
(C) 2
(D) $\frac{1}{2}$

Answer: (B) -1 · The council's preliminary key

Q427 AP EAPCET 2022 · 8 Jul · Shift 1 MCQ

Suppose a triangle of area 27 sq. units is formed by $18x^2 - 9xy + y^2 = 0$ and $y = c$. Then the centroid of the triangle is

(A) $(3, 12)$
(B) $(12, 3)$
(C) $(-12, 3)$
(D) $(-3, 12)$

Answer: (A) $(3, 12)$ · The council's preliminary key

Q428 AP EAPCET 2022 · 8 Jul · Shift 2 MCQ

If a line AB of length r moves so that A and B always lie respectively on x-axis and $y = 6x$, then the locus of midpoint of AB is

(A) $y = 12x$
(B) $\left(x - \frac{y}{3}\right)^2 + y^2 = \frac{r^2}{2}$
(C) $\left(x - \frac{y}{3}\right)^2 + y^2 = \frac{r^2}{4}$
(D) $y = 6x$

Answer: (C) $\left(x - \frac{y}{3}\right)^2 + y^2 = \frac{r^2}{4}$ · The council's preliminary key

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Q429 AP EAPCET 2022 · 8 Jul · Shift 2 MCQ

All points inside the triangle with vertices at $(1, 3)$, $(5, 0)$ and $(-1, 2)$ must necessarily satisfy

(A) $3x + 2y \leq 0$
(B) $3x + 2y > 0$
(C) $2x - 3y - 12 > 0$
(D) $2x + y - 13 > 0$

Answer: (B) $3x + 2y > 0$ · The council's preliminary key

Q430 AP EAPCET 2022 · 8 Jul · Shift 2 MCQ

The line on which the lines $ax + by = 1$ and $bx + ay = 1$ (with $a \neq 0 \neq b$) intersect for any real values of a and b is

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(A) $x = -y$
(B) $x = 2y$
(C) $2x = y$
(D) $x = y$

Answer: (D) $x = y$ · The council's preliminary key

Q431 AP EAPCET 2022 · 8 Jul · Shift 2 MCQ

For $a, b, h > 0$, if the slope of one of the lines represented by $a^2x^2 + 2hxy + b^2y^2 = 0$ is twice that of the other, then the value of $\frac{h}{ab}$ is

(A) $\frac{3\sqrt{2}}{4}$
(B) $\frac{2\sqrt{3}}{4}$
(C) $\frac{-2\sqrt{3}}{4}$
(D) $\frac{-3\sqrt{2}}{4}$

Answer: (A) $\frac{3\sqrt{2}}{4}$ · The council's preliminary key

Q432 AP EAPCET 2022 · 8 Jul · Shift 2 MCQ

Suppose A and B are the points at which the line $x + y - \lambda = 0$ meets the pair of straight lines $x^2 + y^2 - 2x - 4y + 2 = 0$. If $\angle AOB = 90^0$, then a value of λ is

(A) 2
(B) 3
(C) 4
(D) 0

Answer: (A) 2 · The council's preliminary key

Q433 AP EAPCET 2022 · 7 Jul · Shift 1 MCQ

On the locus of the point P(x, y) equidistant from (3,0) and (0, 4), if A and B are two points that satisfy $4x = 3y$ and $x = y$ respectively, then the distance between A and B is

(A) $\frac{5}{2}$
(B) 5
(C) $\frac{25}{4}$
(D) 25

Answer: (A) $\frac{5}{2}$ · The council's preliminary key

Q434 AP EAPCET 2022 · 7 Jul · Shift 1 MCQ

If one side of an isosceles triangle is given by $y = 2$ and the base is provided by the points $(2, 0)$ and $(0, 2)$, then its area (in sq. units) is

(A) $2\sqrt{2}$
(B) 1
(C) 2
(D) 4

Answer: (C) 2 · The council's preliminary key

Q435 AP EAPCET 2022 · 7 Jul · Shift 1 MCQ

The straight line passing through $(0, 0)$ and the foot of perpendicular from $(2, 4)$ onto $x + y - 1 = 0$ is

(A) $y = -3x$
(B) $y = 3x$
(C) $y = \frac{1}{3}x$
(D) $y = \frac{-1}{3}x$

Answer: (A) $y = -3x$ · The council's preliminary key

Q436 AP EAPCET 2022 · 7 Jul · Shift 1 MCQ

If $P(\sin\alpha, \cos\alpha)$ lies inside the triangle formed by the vertices $(0, 0)$, $\left(\frac{\sqrt{3}}{2}, 0\right)$ and $\left(0, \frac{\sqrt{3}}{2}\right)$, then α lies in the interval

(A) $\left(0, \frac{\pi}{3}\right)$
(B) $\left(0, \frac{\pi}{4}\right)$
(C) $\left(0, \frac{\pi}{6}\right)$
(D) $\left(0, \frac{\pi}{12}\right)$

Answer: (D) $\left(0, \frac{\pi}{12}\right)$ · The council's preliminary key

Q437 AP EAPCET 2022 · 7 Jul · Shift 1 MCQ

The triangle formed by $x^2 - 4xy + y^2 = 0$ and $x + y + 4\sqrt{6} = 0$ is

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(A) an equilateral triangle
(B) a right-angled triangle
(C) an isosceles triangle
(D) a scalene triangle

Answer: (A) an equilateral triangle · The council's preliminary key

Q438 AP EAPCET 2022 · 7 Jul · Shift 1 MCQ

The equation of bisectors of the angle between the lines given by $3x^2 + 5xy + 4y^2 = 0$ is

(A) $x^2 - y^2 - \frac{2}{5}xy = 0$
(B) $x^2 - y^2 + \frac{2}{5}xy = 0$
(C) $x^2 - y^2 - \frac{1}{5}xy = 0$
(D) $x^2 - y^2 + \frac{1}{5}xy = 0$

Answer: (B) $x^2 - y^2 + \frac{2}{5}xy = 0$ · Checked by our team

Q439 AP EAPCET 2022 · 7 Jul · Shift 2 MCQ

A point P(x, y) is such that the sum of squares of its distances from (a, 0) and (-a, 0) is $2b^2$. The equation representing the locus of P is

(A) $x^2 + y^2 = b^2 + a^2$
(B) $x^2 + y^2 = b^2 - a^2$
(C) $x^2 + y^2 = b^2 - 2a^2$
(D) $x^2 + y^2 = b^2 + 2a^2$

Answer: (B) $x^2 + y^2 = b^2 - a^2$ · The council's preliminary key

Q440 AP EAPCET 2022 · 7 Jul · Shift 2 MCQ

Suppose the hypotenuse and its opposite vertex of an isosceles right angled triangle are $3x + 4y - 4 = 0$ and (2, 2) respectively. Then, which of the following is another side of the triangle?

(A) $x - 7y - 12 = 0$
(B) $x + 7y + 12 = 0$
(C) $7x + y - 16 = 0$
(D) $7x + y + 16 = 0$

Answer: (C) $7x + y - 16 = 0$ · The council's preliminary key

Q441 AP EAPCET 2022 · 7 Jul · Shift 2 MCQ

A point P on a line is at a distance of 4 units from the origin (0, 0). If the line makes 60^0 with the negative direction of the x - axis, then P is

(A) $(2, 2\sqrt{3})$
(B) $(2\sqrt{3}, 2)$
(C) $(1, \sqrt{3})$
(D) $(2\sqrt{3}, 1)$

Answer: (A) $(2, 2\sqrt{3})$ · Checked by our team

Q442 AP EAPCET 2022 · 7 Jul · Shift 2 MCQ

Suppose ABOC is a rhombus in the first quadrant with O being the origin. If the vertices B and C of ΔABC lie respectively on $y = \frac{4}{3}x$ and $y = 0$, and the side BC passes through $\left(\frac{2}{3}, \frac{2}{3}\right)$, then the midpoint of BC is

(A) $\left(\frac{4}{5}, \frac{2}{5}\right)$
(B) $\left(\frac{2}{3}, \frac{2}{3}\right)$
(C) $\left(\frac{2}{5}, \frac{4}{5}\right)$
(D) $\left(\frac{1}{3}, \frac{1}{3}\right)$

Answer: (A) $\left(\frac{4}{5}, \frac{2}{5}\right)$ · The council's preliminary key

Q443 AP EAPCET 2022 · 7 Jul · Shift 2 MCQ

If $ax^2 - 34xy - 5y^2 + 2x + 26y - 5 = 0$ represents a pair of straight lines, then the value of a is

(A) 7
(B) 5
(C) 2
(D) 13

Answer: (A) 7 · The council's preliminary key

Q444 AP EAPCET 2022 · 7 Jul · Shift 2 MCQ

The equations of the lines perpendicular to $x^2 - 5xy + 4y^2 = 0$ and passing through (2, 1) is

(A) $4x^2 + 5xy + y^2 - 13x - 1 = 0$
(B) $4x^2 + 5xy + y^2 - 5x - 10y - 7 = 0$
(C) $4x^2 + 5xy + y^2 - 4x - 4y - 15 = 0$
(D) $4x^2 + 5xy + y^2 - 21x - 12y + 27 = 0$

Answer: (D) $4x^2 + 5xy + y^2 - 21x - 12y + 27 = 0$ · The council's preliminary key

Q445 AP EAPCET 2022 · 6 Jul · Shift 1 MCQ

A point P(x, y) is such that its distances from $(-1, 0)$ and $(0, 2)$ are in a ratio of $\sqrt{2} : 1$. Then the locus of P is

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(A) $(x-1)^2+(y-4)^2=10$
(B) $(x+2)^2+(y+2)^2=10$
(C) $(x-1)^2+(y-4)^2=100$
(D) $(x+2)^2+(y+2)^2=100$

Answer: (A) $(x-1)^2+(y-4)^2=10$ · The council's preliminary key

Q446 AP EAPCET 2022 · 6 Jul · Shift 1 MCQ

If a point (α,β) of $3x+y=0$ and $(3,4)$ lie on the opposite sides of $3x-4y-8=0$ then which of the following is correct?

(A) $15\alpha-8>0$
(B) $\alpha\in(-\infty,\infty)$
(C) $15\alpha-8=0$
(D) $\alpha=0$

Answer: (A) $15\alpha-8>0$ · The council's preliminary key

Q447 AP EAPCET 2022 · 6 Jul · Shift 1 MCQ

If a particle moving along $x-2y-3=0$ gets reflected in a perpendicular direction upon hitting the line $3x-2y-5=0$, then the line of the movement of the particle after reflection is

(A) $2x+y+1=0$
(B) $2x+y-1=0$
(C) $2x+y-3=0$
(D) $2x+y+3=0$

Answer: (B) $2x+y-1=0$ · The council's preliminary key

Q448 AP EAPCET 2022 · 6 Jul · Shift 1 MCQ

The family of lines, forming an isosceles triangle with the lines $3x-4y-2=0$ and $12x-5y+6=0$, is

(A) $9x+7y+c=0$
(B) $7x-9y+c=0$
(C) $9x-7y+c=0$
(D) $x\pm y+c=0$

Answer: (C) $9x-7y+c=0$ · The council's preliminary key

Q449 AP EAPCET 2022 · 6 Jul · Shift 1 MCQ

The straight line passing through $(-1,1)$ and remaining parallel to the line common to the pairs of lines provided by $6x^2-xy-12y^2=0$ and $15x^2+14xy-8y^2=0$, is

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(A) $5x - 2y + 7 = 0$
(B) $3x + 4y - 1 = 0$
(C) $3x - 4y + 7 = 0$
(D) $2x - 3y + 5 = 0$

Answer: (B) $3x + 4y - 1 = 0$ · The council's preliminary key

Q450 AP EAPCET 2022 · 6 Jul · Shift 1 MCQ

The midpoint of the diagonal of a rectangle formed by $x^2 + 5x - 6 = 0$ and $y^2 - 8y - 20 = 0$ is

(A) $\left(\frac{5}{2}, 4\right)$
(B) $\left(\frac{-5}{2}, -6\right)$
(C) $\left(\frac{-5}{2}, 4\right)$
(D) $\left(\frac{5}{2}, -6\right)$

Answer: (C) $\left(\frac{-5}{2}, 4\right)$ · The council's preliminary key

Q451 AP EAPCET 2022 · 6 Jul · Shift 2 MCQ

A variable line passing through (l, m) intersects the coordinate axes at the points A and B. If the lines drawn parallel to y-axis through A and parallel to x-axis through B meet at P, then the locus of P is

(A) $\frac{l}{x} + \frac{m}{y} = 1$
(B) $\frac{x}{l} + \frac{y}{m} = 1$
(C) $\frac{m}{x} + \frac{l}{y} = 1$
(D) $\frac{x}{m} + \frac{y}{l} = 1$

Answer: (A) $\frac{l}{x} + \frac{m}{y} = 1$ · The council's preliminary key

Q452 AP EAPCET 2022 · 6 Jul · Shift 2 MCQ

The triangle with vertices at (-2, 2), (2, -2) and (1, 1) is

(A) Scalene triangle
(B) Equilateral triangle
(C) Isosceles triangle
(D) Right-angled triangle

Answer: (C) Isosceles triangle · The council's preliminary key

Q453 AP EAPCET 2022 · 6 Jul · Shift 2 MCQ

For the three points A (2, 0), B (0, 2) and P (1, 1), suppose d is the algebraic sum of the distances of A and B from a line that passes through P. Then which of the following is correct?

(A) $d > 0$ for all lines
(B) $d = 0$ for at least one line
(C) $d = 0$ for all lines
(D) $d > 0$ at least for one line

Options (3) or (2) were accepted. More than one answer was accepted. · The council's preliminary key

Q454 AP EAPCET 2022 · 6 Jul · Shift 2 MCQ

Number of triangles formed by the lines $x - y + 3 = 0$, $2x - y + 3 = 0$, $3x - y + 2 = 0$ and $x + y - 3 = 0$ is

(A) 4
(B) 6
(C) 3
(D) 2

Answer: (C) 3 · Checked by our team

Q455 AP EAPCET 2022 · 6 Jul · Shift 2 MCQ

The two pairs of straight lines $12x^2 + 7xy - 12y^2 = 0$ and $12x^2 + 7xy - 12y^2 - x + 7y - 1 = 0$ constitute a

(A) square of area $\frac{1}{25}$ sq.units
(B) square of area $\frac{1}{5}$ sq.units
(C) rectangle of area $\frac{1}{10}$ sq.units
(D) rectangle of area $\frac{1}{15}$ sq.units

Answer: (A) square of area $\frac{1}{25}$ sq.units · The council's preliminary key

Q456 AP EAPCET 2022 · 6 Jul · Shift 2 MCQ

The distance between the lines represented by $4x^2 + 20xy + 25y^2 + 2x + 5y - 12 = 0$ is equal to

(A) $\frac{7}{\sqrt{29}}$
(B) 0
(C) $\frac{7}{29}$
(D) $\frac{49}{29}$

Answer: (A) $\frac{7}{\sqrt{29}}$ · The council's preliminary key

Q457 AP EAPCET 2022 · 5 Jul · Shift 1 MCQ

The locus of midpoints of points of intersection of $x\cos\theta + y\sin\theta = 1$ with the coordinate axes is

(A) $x^2 + y^2 = 4$
(B) $\frac{1}{x^2} + \frac{1}{y^2} = \frac{1}{4}$
(C) $\frac{1}{x^2} + \frac{1}{y^2} = \frac{1}{2}$
(D) $x^2 + y^2 = 2$

Answer: (B) $\frac{1}{x^2} + \frac{1}{y^2} = \frac{1}{4}$ · The council's preliminary key

Q458 AP EAPCET 2022 · 5 Jul · Shift 1 MCQ

Suppose P and Q lie on $3x + 4y - 4 = 0$ and $5x - y - 4 = 0$ respectively. If the midpoint of PQ is $(1, 5)$, then the slope of the line passing through P and Q is

(A) $\frac{83}{35}$
(B) $\frac{63}{35}$
(C) $\frac{-3}{4}$
(D) $\frac{3}{4}$

Answer: (A) $\frac{83}{35}$ · The council's preliminary key

Q459 AP EAPCET 2022 · 5 Jul · Shift 1 MCQ

The length of intercept of $x + 1 = 0$ between the lines $3x + 2y = 5$ and $3x + 2y = 3$ is

(A) 2
(B) 1
(C) 3
(D) 4

Answer: (B) 1 · The council's preliminary key

Q460 AP EAPCET 2022 · 5 Jul · Shift 1 MCQ

Suppose that the three points A, B and C in the plane are such that their x-coordinates as well as y-coordinates are in GP with the same common ratio. Then the points A, B and C

(A) constitute a right angled triangle
(B) form an isosceles triangle
(C) lie on a straight line
(D) form an equilateral triangle

Answer: (C) lie on a straight line · The council's preliminary key

Q461 AP EAPCET 2022 · 5 Jul · Shift 1 MCQ

Suppose the slopes m_1 and m_2 of the lines represented by $ax^2 + 2hxy + by^2 = 0$ satisfy $3(m_1 - m_2) - 7 = 0$ and $m_1 m_2 - 2 = 0$. Then which of the following is true?

(A) $\frac{a}{12} = \frac{b}{6} = \frac{h}{\pm 11}$
(B) $\frac{a}{6} = \frac{b}{12} = \frac{h}{\pm 11}$
(C) $a = b = \pm h$
(D) $\frac{a}{2} = b = \pm h$

Answer: (A) $\frac{a}{12} = \frac{b}{6} = \frac{h}{\pm 11}$ · The council's preliminary key

Q462 AP EAPCET 2022 · 5 Jul · Shift 1 MCQ

Suppose that the sides passing through the vertex (α, β) of a triangle are bisected at right angles by the lines $y^2 - 8xy - 9x^2 = 0$. Then the centroid of the triangle is

(A) $\frac{1}{123}(\alpha, \beta)$
(B) $\frac{1}{123}(\alpha + 32\beta,\ 81\beta + 32\alpha)$
(C) $\frac{1}{123}(\alpha - 32\beta,\ 81\beta + 32\alpha)$
(D) $\frac{1}{123}(\alpha - 32\beta,\ 81\beta - 32\alpha)$

Answer: (D) $\frac{1}{123}(\alpha - 32\beta,\ 81\beta - 32\alpha)$ · The council's preliminary key

Q463 AP EAPCET 2022 · 5 Jul · Shift 2 MCQ

Suppose a point P moves so that $BP^2 - AP^2 = 121$, where A and B are $(2, 5)$ and $(5, 11)$ respectively. Then the locus of P is a straight line, whose slope is

(A) $1/2$
(B) -2
(C) $-1/2$
(D) 2

Answer: (C) $-1/2$ · The council's preliminary key

Q464 AP EAPCET 2022 · 5 Jul · Shift 2 MCQ

If two distinct points lying at a unit distance from $4x + 3y - 10 = 0$ and passing through $x + y = 4$ are separated by a distance d, then the value of d is

(A) $10\sqrt{2}$
(B) 10
(C) $\sqrt{2}$
(D) 200

Answer: (A) $10\sqrt{2}$ · The council's preliminary key

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Q465 AP EAPCET 2022 · 5 Jul · Shift 2 MCQ

Suppose P (x, y) lying on $\sqrt{3}x - y + 2 = 0$ or $\sqrt{3}x + y - 2 = 0$ is at a distance of 5 units from their point of intersection. Then the distance from $(0, 0)$ to the foot of the perpendicular of P onto the y-axis is

(A) $2 + \frac{5\sqrt{3}}{2}$
(B) $\frac{5\sqrt{3}}{2}$
(C) 2
(D) $2 - \frac{5\sqrt{3}}{2}$

Answer: (A) $2 + \frac{5\sqrt{3}}{2}$ · The council's preliminary key

Q466 AP EAPCET 2022 · 5 Jul · Shift 2 MCQ

If A $(-3, 3)$, B $(1, 1)$, C $(1, -1)$ and D $(-2, -2)$ are the vertices of a quadrilateral, the angle between the diagonals AC and BD is

(A) $\frac{\pi}{4}$
(B) $\frac{\pi}{2}$
(C) $\frac{\pi}{6}$
(D) $\frac{\pi}{3}$

Answer: (B) $\frac{\pi}{2}$ · The council's preliminary key

Q467 AP EAPCET 2022 · 5 Jul · Shift 2 MCQ

Suppose the pairs of straight lines $2x^2 + axy + 3y^2 = 0$ and $2x^2 + bxy - 3y^2 = 0$ are such that they have one common line with the other two remaining perpendicular. Then the values of a and b respectively are

(A) $-5, 1$
(B) $5, -1$
(C) $5, 1$
(D) $5, \frac{1}{5}$

Answer: (C) $5, 1$ · The council's preliminary key

Q468 AP EAPCET 2022 · 5 Jul · Shift 2 MCQ

The locus of the incentre of the triangle formed by the lines $xy - 4x - 4y + 16 = 0$ and $x + y = 5$ is

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(A) $x - y = 0$
(B) $x + y = 0$
(C) $x - 2y = 0$
(D) $2x - y = 0$

Answer: (A) $x - y = 0$ · The council's preliminary key

Q469 AP EAPCET 2022 · 4 Jul · Shift 1 MCQ

A stick of length r units slides with its ends on coordinate axes. Then the locus of the midpoint of the stick is a curve whose length is

(A) $2\pi r$
(B) πr^2
(C) $\frac{1}{2}\pi r$
(D) πr

Answer: (D) πr · The council's preliminary key

Q470 AP EAPCET 2022 · 4 Jul · Shift 1 MCQ

The least distance from origin to a point on the line y = x + 3 which lies at a distance of 2 units from (0, 3) is

(A) $13 + 6\sqrt{2}$
(B) $10 + 6\sqrt{2}$
(C) $10 - 6\sqrt{2}$
(D) $13 - 6\sqrt{2}$

Answer: (D) $13 - 6\sqrt{2}$ · The council's preliminary key

Q471 AP EAPCET 2022 · 4 Jul · Shift 1 MCQ

Starting from the point A (-3, 4), a moving object touches 2x + y - 7 = 0 at B and reaches the point C (0, 1). If the object travels along the shortest path, the distance between A and B is

(A) $\frac{68}{\sqrt{170}}$
(B) $\frac{9}{\sqrt{5}}$
(C) $3\sqrt{2}$
(D) $\frac{6}{\sqrt{5}}$

Answer: (A) $\frac{68}{\sqrt{170}}$ · The council's preliminary key

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Q472 AP EAPCET 2022 · 4 Jul · Shift 1 MCQ

Suppose a triangle is formed by x + y = 10 and the coordinate axes. Then the number of points (x, y) where x and y are natural numbers, lying inside the triangle is

(A) 36
(B) 55
(C) 45
(D) 30

Answer: (A) 36 · The council's preliminary key

Q473 AP EAPCET 2022 · 4 Jul · Shift 1 MCQ

If the lines represented by $ax^2 + 2hxy + by^2 + 2gx + 2fy + c = 0$ intersect on the x-axis, which of the following is in general incorrect

(A) abc = 2fgh
(B) $g^2 = ac$
(C) $af^2 = ch^2$
(D) $af^2 + ch^2 = 2fgh$

Answer: (A) abc = 2fgh · The council's preliminary key

Q474 AP EAPCET 2022 · 4 Jul · Shift 1 MCQ

For $\alpha \in \left[0, \frac{\pi}{2}\right]$, the angle between the lines represented by $[x\cos\theta - y]\,[(\cos\theta + \tan\alpha)x - (1 - \cos\theta \cdot \tan\alpha)y] = 0$ is

(A) α
(B) θ
(C) $\theta + \alpha$
(D) $\theta - \alpha$

Answer: (A) α · The council's preliminary key

Q475 AP EAPCET 2022 · 4 Jul · Shift 1 MCQ

The Locus of centers of the circles, possessing the same area and having 3x - 4y + 4 = 0 and 6x - 8y + 7 = 0 as their common tangent, is

(A) 12x - 16y - 15 = 0
(B) $3x - 4y + \frac{11}{2} = 0$
(C) 12x - 16y + 15 = 0
(D) $3x - 4y - \frac{11}{2} = 0$

Answer: (C) 12x - 16y + 15 = 0 · The council's preliminary key

Q476 AP EAPCET 2022 · 4 Jul · Shift 2 MCQ

Suppose P and Q are the mid points of the sides AB and BC of a triangle where A(1, 3), B(3, 7) and C(7, 15) are vertices. Then the locus of R satisfying $AC^2 + QR^2 = PR^2$ is

(A) $6x + 12y = 297$
(B) $6x + 12y + 297 = 0$
(C) $12x + 6y = 297$
(D) $12x + 6y + 297 = 0$

Answer: (A) $6x + 12y = 297$ · The council's preliminary key

Q477 AP EAPCET 2022 · 4 Jul · Shift 2 MCQ

Suppose $\triangle ABC$ is an isosceles triangle with $\angle C = 90^0$, A = (2, 3) and B = (4, 5). Then the centroid of the triangle is

(A) $\left(\frac{13}{8}, \frac{8}{3}\right)$
(B) $\left(\frac{11}{3}, \frac{10}{3}\right)$
(C) $\left(\frac{10}{3}, \frac{13}{3}\right)$
(D) $\left(\frac{10}{3}, \frac{11}{3}\right)$

Answer: (D) $\left(\frac{10}{3}, \frac{11}{3}\right)$ · The council's preliminary key

Q478 AP EAPCET 2022 · 4 Jul · Shift 2 MCQ

If the points of intersection of the coordinate axes and $|x + y| = 2$ form a rhombus, then its area is

(A) 8
(B) 16
(C) 2
(D) 4

Answer: (A) 8 · The council's preliminary key

Q479 AP EAPCET 2022 · 4 Jul · Shift 2 MCQ

Suppose, in triangle $\triangle ABC$, x - y + 5 = 0, x + 2y = 0 are respectively the equations of the perpendicular bisectors of the sides AB and AC. If A is (1, -2), the equation of the line joining B and C is

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(A) $6x + 7y = 0$
(B) $14x + 23y - 40 = 0$
(C) $2x - 11y = 0$
(D) $2x + y = 0$

Answer: (B) $14x + 23y - 40 = 0$ · The council's preliminary key

Q480 AP EAPCET 2022 · 4 Jul · Shift 2 MCQ

If the pair of straight lines $9x^2 + axy + 4y^2 + 6x + by - 3 = 0$ represents two parallel lines then

(A) a = 6, b = 2
(B) a = 12, b = 4
(C) a = 3, b = 1
(D) a = -12, b = 4

Answer: (B) a = 12, b = 4 · The council's preliminary key

Q481 AP EAPCET 2022 · 4 Jul · Shift 2 MCQ

A line passing through P (2, 3) and making an angle of 30^0 with the positive direction of x-axis meets $x^2 - 2xy - y^2 = 0$ at A and B. Then the value of PA.PB is

(A) $17\sqrt{3} + 1$
(B) $17(\sqrt{3} + 1)$
(C) $17(\sqrt{3} - 1)$
(D) $17\sqrt{3} - 1$

Answer: (B) $17(\sqrt{3} + 1)$ · The council's preliminary key

Q482 AP EAPCET 2021 · 5 Oct · Shift 1 MCQ

The equation of the locus of a point which is at a distance of 3 units from the point $(-1, 2)$ in the XY -plane is:

(A) $x^2 + y^2 + 2x - 4y + 4 = 0$
(B) $x^2 + y^2 + 2x - 4y - 4 = 0$
(C) $x^2 + y^2 - 2x + 4y - 4 = 0$
(D) $x^2 - y^2 + 2x - 4y - 4 = 0$

Answer: (B) $x^2 + y^2 + 2x - 4y - 4 = 0$ · The council's preliminary key

Q483 AP EAPCET 2021 · 5 Oct · Shift 1 MCQ

If the point P changes to $(4, -3)$ when the axes are rotated through an angle of 135° then the coordinates of the point P, with respect to the original system is _____

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(A) $\left(\frac{1}{\sqrt{2}}, \frac{7}{\sqrt{2}}\right)$
(B) $\left(\frac{1}{\sqrt{2}}, \frac{-7}{\sqrt{2}}\right)$
(C) $\left(\frac{-1}{\sqrt{2}}, \frac{7}{\sqrt{2}}\right)$
(D) $\left(\frac{-1}{\sqrt{2}}, \frac{-7}{\sqrt{2}}\right)$

Answer: (C) $\left(\frac{-1}{\sqrt{2}}, \frac{7}{\sqrt{2}}\right)$ · The council's preliminary key

Q484 AP EAPCET 2021 · 5 Oct · Shift 1 MCQ

The angle which the straight line $\sqrt{3}y - x + 4 = 0$ makes with the y-axis is _____

(A) 45°
(B) 30°
(C) 75°
(D) 60°

Answer: (D) 60° · The council's preliminary key

Q485 AP EAPCET 2021 · 5 Oct · Shift 1 MCQ

If $2x - 3y - 5 = 0$ is the perpendicular bisector of the line segment joining the points $(3, -4)$ and (α, β) then $\alpha + \beta$ is equal to _____

(A) 3
(B) 2
(C) 1
(D) -2

Answer: (C) 1 · The council's preliminary key

Q486 AP EAPCET 2021 · 5 Oct · Shift 1 MCQ

If 'p' is the length of the perpendicular from the origin onto the line $\frac{x}{a} + \frac{y}{b} = 1$ and a^2, p^2, b^2 are in AP, then $a^4 - 2p^2a^2 + 2p^4 =$ _____

(A) -1
(B) 0
(C) 1
(D) 2

Answer: (B) 0 · The council's preliminary key

Q487 AP EAPCET 2021 · 5 Oct · Shift 1 MCQ

$A(2, 3)$ and $B(3, -5)$ are two vertices of a ΔABC. If point C lies on the line $L = 3x + 4y - 5 = 0$, then the locus of centroid of triangle ΔABC is a line parallel to _____

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(A) $L = 0$
(B) $\overline{AB}$
(C) $\overline{BC}$
(D) $\overline{AC}$

Answer: (A) $L = 0$ · The council's preliminary key

Q488 AP EAPCET 2021 · 5 Oct · Shift 1 MCQ

If $2x^2 - 5xy + 2y^2 = 0$ represents two sides of a triangle whose centroid is $(1, 1)$, then the equation of the other side is

(A) $x - y - 3 = 0$
(B) $x + y + 3 = 0$
(C) $x - y + 3 = 0$
(D) $x + y - 3 = 0$

Answer: (D) $x + y - 3 = 0$ · The council's preliminary key

Q489 AP EAPCET 2021 · 5 Oct · Shift 1 MCQ

If angle between the lines represented by $x^2 - xy + ay^2 = 0$ is 45°, then 'a' equals _____

(A) 0 only
(B) -6 only
(C) 0 (or) -6
(D) ± 6

Answer: (C) 0 (or) -6 · The council's preliminary key

Q490 AP EAPCET 2021 · 5 Oct · Shift 1 MCQ

If 'θ' is acute angle between the lines $x^2 - 7xy + 12y^2 = 0$, then $\left|\frac{3\cos\theta + 4\sin\theta}{2\sin\theta + \cos\theta}\right| =$

(A) $\frac{1}{13}$
(B) $\frac{43}{15}$
(C) $\frac{34}{72}$
(D) $\frac{7}{9}$

Answer: (B) $\frac{43}{15}$ · The council's preliminary key

Q491 AP EAPCET 2021 · 5 Oct · Shift 1 MCQ

The angle between the pair of lines represented by the equation $(a^2 - 3b^2)x^2 + 8abxy + (b^2 - 3a^2)y^2 = 0$ is _____

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(A) 30°
(B) 45°
(C) 75°
(D) 60°

Answer: (D) 60° · The council's preliminary key

Q492 AP EAPCET 2021 · 25 Aug · Shift 1 MCQ

The equation of the locus of a point which is equidistant from the points $(2, 3)$ and $(4, 5)$ is:

(A) $x + y = 0$
(B) $x + y = 4$
(C) $x + y = 7$
(D) $4x + 4y = 38$

Answer: (C) $x + y = 7$ · The council's preliminary key

Q493 AP EAPCET 2021 · 25 Aug · Shift 1 MCQ

The equation obtained by transforming $x^2 + y^2 - 6x + 10y - 2 = 0$ to the parallel axis through $(3, -5)$ is _____

(A) $x^2 + y^2 = 16$
(B) $x^2 + y^2 = 9$
(C) $x^2 + y^2 = 25$
(D) $x^2 + y^2 = 36$

Answer: (D) $x^2 + y^2 = 36$ · The council's preliminary key

Q494 AP EAPCET 2021 · 25 Aug · Shift 1 MCQ

If a point (a, a) falls between the lines $|x + y| = 4$, then _____

(A) $|a| = 2$
(B) $|a| = 3$
(C) $|a| < 2$
(D) $|a| < 3$

Answer: (C) $|a| < 2$ · Checked by our team

Q495 AP EAPCET 2021 · 25 Aug · Shift 1 MCQ

If the straight lines $2x - y + 1 = 0$, $4x + y + 2 = 0$ and $x + y - k = 0$ are concurrent, then 'k' equals _____

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(A) $\frac{1}{2}$
(B) 2
(C) -2
(D) $\frac{-1}{2}$

Answer: (D) $\frac{-1}{2}$ · The council's preliminary key

Q496 AP EAPCET 2021 · 25 Aug · Shift 1 MCQ

Find the value(s) of 'k' such that the distance between the two parallel lines represented by $(x-2y)^2+k(x-2y)=0$ is 3 units.

(A) 0
(B) $\pm 3\sqrt{5}$
(C) ± 5
(D) ± 3

Answer: (B) $\pm 3\sqrt{5}$ · The council's preliminary key

Q497 AP EAPCET 2021 · 25 Aug · Shift 1 MCQ

In an isosceles triangle ABC, the coordinates of vertices B and C of the base BC are $(3,2)$ and $(2,3)$ respectively. If the equation of the line AB is $3y=2x$, then the equation of the line AC is _____

(A) $2y=3x$
(B) $2y=x$
(C) $x+y=0$
(D) $2x-y=0$

Answer: (A) $2y=3x$ · The council's preliminary key

Q498 AP EAPCET 2021 · 25 Aug · Shift 1 MCQ

If $4x^2-5xy+y^2=0$ represents a pair of lines with slopes m_1 and m_2, then the value of $|m_1-m_2|$ equals _____

(A) 1
(B) 2
(C) 3
(D) 4

Answer: (C) 3 · The council's preliminary key

Q499 AP EAPCET 2021 · 25 Aug · Shift 1 MCQ

The three lines given by the combined equation $y^3-4x^2y=0$ represents _____

(A) the sides of an isosceles triangle
(B) the sides of a right-angled triangle
(C) the sides of an equilateral triangle
(D) concurrent lines

Answer: (D) concurrent lines · The council's preliminary key

Q500 AP EAPCET 2021 · 25 Aug · Shift 1 MCQ

The angle between the lines $ab(x^2 - y^2) + (a^2 - b^2)xy = 0$ is _____

(A) $\frac{\pi}{2}$
(B) $\frac{\pi}{3}$
(C) $\frac{\pi}{4}$
(D) $\frac{\pi}{6}$

Answer: (A) $\frac{\pi}{2}$ · The council's preliminary key

Q501 AP EAPCET 2021 · 25 Aug · Shift 1 MCQ

If the lines $4x + 3y - 1 = 0$, $x - y + 5 = 0$ and $kx + 5y - 3 = 0$ are concurrent then $k =$

(A) 4
(B) 5
(C) 6
(D) 7

Answer: (C) 6 · The council's preliminary key

Q502 AP EAPCET 2021 · 25 Aug · Shift 2 MCQ

A rod of length $2l$ slides with its ends on two perpendicular lines, then the locus of its mid-point is _____

(A) $x^2 + y^2 = l^2$
(B) $x^2 - y^2 = l^2$
(C) $2x^2 + 2y^2 = l^2$
(D) $2x^2 - 2y^2 = l^2$

Answer: (A) $x^2 + y^2 = l^2$ · The council's preliminary key

Q503 AP EAPCET 2021 · 25 Aug · Shift 2 MCQ

If the axes are transformed to the point $(-1, 1)$ then the equation $3x^2 + y^2 + 2x + 4y + 15 = 0$ would transform to _____

(A) $3x^2 + 2y^2 - 4x + 6y + 23 = 0$
(B) $3x^2 + y^2 - 4x + 6y + 21 = 0$
(C) $3x^2 + y^2 + 4x - 6y - 21 = 0$
(D) $3x^2 + y^2 + 4x + 6y + 21 = 0$

Answer: (B) $3x^2 + y^2 - 4x + 6y + 21 = 0$ · The council's preliminary key

Q504 AP EAPCET 2021 · 25 Aug · Shift 2 MCQ

Find the value of 'k', if the line joining the points $(2, k)$ and $(3, 7)$ is parallel to the line joining points $(-2, 1)$ and $(3, 0)$.

(A) $\frac{37}{5}$
(B) $\frac{34}{5}$
(C) $\frac{36}{5}$
(D) $\frac{35}{5}$

Answer: (C) $\frac{36}{5}$ · The council's preliminary key

Q505 AP EAPCET 2021 · 25 Aug · Shift 2 MCQ

The equation of a line though (sic) the point $(1, 2)$ whose distance from the point $(3, 1)$ has the greatest value is _____

(A) $y = 2x$
(B) $y = x + 1$
(C) $x + 2y = 5$
(D) $y = 3x - 1$

Answer: (A) $y = 2x$ · The council's preliminary key

Q506 AP EAPCET 2021 · 25 Aug · Shift 2 MCQ

Identify the point on the line $2x + 3y + 7 = 0$, which is at a distance of $+3$ units from $(1, -3)$.

(A) $\left(\frac{\sqrt{13}+9}{\sqrt{13}}, \frac{-3\sqrt{13}+6}{\sqrt{13}}\right)$
(B) $\left(\frac{\sqrt{13}-9}{\sqrt{13}}, \frac{-3\sqrt{13}-6}{\sqrt{13}}\right)$
(C) $\left(\frac{\sqrt{13}-9}{\sqrt{13}}, \frac{-3\sqrt{13}+6}{\sqrt{13}}\right)$
(D) $\left(\frac{\sqrt{13}+9}{\sqrt{13}}, \frac{3\sqrt{13}-6}{\sqrt{13}}\right)$

Answer: (C) $\left(\frac{\sqrt{13}-9}{\sqrt{13}}, \frac{-3\sqrt{13}+6}{\sqrt{13}}\right)$ · The council's preliminary key

Q507 AP EAPCET 2021 · 25 Aug · Shift 2 MCQ

A person standing at the junction (crossing) of 2 straight paths represented by the equations $2x - 3y + 4 = 0$ and $3x + 4y - 5 = 0$, wants to reach the path whose equation is $6x - 7y + 8 = 0$ in the

least time, then the equation of the path he should follow is _____

(A) $119x - 102y - 125 = 0$
(B) $119x + 102y - 125 = 0$
(C) $102x + 119y - 125 = 0$
(D) $102x + 119y + 125 = 0$

Answer: (B) $119x + 102y - 125 = 0$ · The council's preliminary key

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Q508 AP EAPCET 2021 · 25 Aug · Shift 2 MCQ

Which among the following represents the combined equation of a pair of lines through point $(1, 0)$ and parallel to the lines represented by $2x^2 - xy - y^2 = 0$.

(A) $2x^2 - xy - 2y^2 + 4x - y = 6$
(B) $2x^2 - xy - y^2 - 4x - y + 2 = 0$
(C) $2x^2 - xy - y^2 - 4x + y + 2 = 0$
(D) $2x^2 - xy - y^2 - 4x - y = 2$

Answer: (C) $2x^2 - xy - y^2 - 4x + y + 2 = 0$ · The council's preliminary key

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Q509 AP EAPCET 2021 · 25 Aug · Shift 2 MCQ

The slopes of the lines represented by $x^2 + 2hxy + 2y^2 = 0$ are in the ratio $(1 : 2)$ then $h =$

(A) $\pm\frac{1}{2}$
(B) $\pm\frac{3}{2}$
(C) ± 1
(D) ± 3

Answer: (B) $\pm\frac{3}{2}$ · The council's preliminary key

Q510 AP EAPCET 2021 · 25 Aug · Shift 2 MCQ

Two of the lines represented by the equation $ay^4 + bxy^3 + cx^2y^2 + dx^3y + ex^4 = 0$ will be perpendicular, then

(A) $(b + d)(ad + be) + (e - a)^2(a + c + e) = 0$
(B) $(b + d)(ad + be) + (e + a)^2(a + c + e) = 0$
(C) $(b - d)(ad - be) + (e - a)^2(a + c + e) = 0$
(D) $(b - d)(ad - be) + (e + a)^2(a + c + e) = 0$

Answer: (A) $(b + d)(ad + be) + (e - a)^2(a + c + e) = 0$ · The council's preliminary key

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Q511 AP EAPCET 2021 · 25 Aug · Shift 2 MCQ

If the lines $x^2 + 2xy - 35y^2 - 4x + 44y - 12 = 0$ and $5x + ky - 8 = 0$ are concurrent then 'k' equals _____

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(A) 4
(B) 3
(C) 2
(D) 1

Answer: (C) 2 · The council's preliminary key

Q512 AP EAPCET 2021 · 24 Aug · Shift 1 MCQ

For two points $A(2,1)$ and $B(1,2)$, 'P' is a point such that $PA : PB = 2 : 1$, then locus of P is _____

(A) $3x^2 + 3y^2 + 4x + 14y - 15 = 0$
(B) $3x^2 + 3y^2 - 4x - 14y + 15 = 0$
(C) $3x^2 + 3y^2 + 2x + 7y + 13 = 0$
(D) $3x^2 + 3y^2 - 2x - 7y - 13 = 0$

Answer: (B) $3x^2 + 3y^2 - 4x - 14y + 15 = 0$ · The council's preliminary key

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Q513 AP EAPCET 2021 · 24 Aug · Shift 1 MCQ

The equations of sides $\overline{AB}$, $\overline{BC}$ and $\overline{CA}$ of a triangle ABC are $2x + y = 0$, $x + py = q$ and $x - y = 3$ respectively. If $P(2,3)$ is its orthocenter, then the value of $p + q$ equals _____

(A) 50
(B) 47
(C) 65
(D) 74

Answer: (A) 50 · The council's preliminary key

Q514 AP EAPCET 2021 · 24 Aug · Shift 1 MCQ

A line 'L' through $A(-5,-4)$ meets the lines $x + 3y + 2 = 0$, $2x + y + 4 = 0$, $x - y - 5 = 0$ at points B, C and D respectively. If $\left(\frac{15}{AB}\right)^2 + \left(\frac{10}{AC}\right)^2 = \left(\frac{6}{AD}\right)^2$, then find the equation of 'L'.

(A) $2x + 3y + 22 = 0$
(B) $5x - 4y + 7 = 0$
(C) $3x - 2y + 3 = 0$
(D) $3x - 2y + 7 = 0$

Answer: (A) $2x + 3y + 22 = 0$ · The council's preliminary key

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Q515 AP EAPCET 2021 · 24 Aug · Shift 1 MCQ

A straight line $\frac{x}{a} - \frac{y}{b} = 1$ passes through the point $(8,6)$ and cuts a triangle of area 12 sq. units from the axes of coordinates. The equations of the straight lines are _____

(A) $3x + 2y = 12$ & $3x + 8y = 24$

(B) $3x - 2y - 12 = 0$ & $3x - 8y + 24 = 0$

(C) $2x + 3y = 12$ & $8x + 3y = 24$

(D) $2x - 3y + 12 = 0$ & $8x + 3y + 24 = 0$

Answer: (B) $3x - 2y - 12 = 0$ & $3x - 8y + 24 = 0$ · The council's preliminary key

Q516 AP EAPCET 2021 · 24 Aug · Shift 1 MCQ

If a straight line through the point $P(1, 2)$, which makes an angle 45° with the x-axis, meets the line $3x + 4y + 5 = 0$ at Q, then length of PQ equals _____ units

(A) $\frac{16\sqrt{2}}{7}$

(B) $\frac{\sqrt{7}}{2}$

(C) $\frac{7\sqrt{2}}{16}$

(D) $\frac{16}{7}$

Answer: (A) $\frac{16\sqrt{2}}{7}$ · The council's preliminary key

Q517 AP EAPCET 2021 · 24 Aug · Shift 1 MCQ

The distance between pair of parallel lines represented by $x^2 + 2xy + y^2 - 8ax - 8ay - 9a^2 = 0$ is _____ units

(A) $5\sqrt{2}$

(B) $5\sqrt{2}\,a$

(C) $2\sqrt{5}\,a$

(D) a

Answer: (B) $5\sqrt{2}\,a$ · The council's preliminary key

Q518 AP EAPCET 2021 · 24 Aug · Shift 1 MCQ

The angle between lines represented by $(\sin^2\alpha)y^2 - 2xy(\cos^2\alpha) + (\cos^2\alpha - 1)x^2 = 0$ is _____

(A) 2α

(B) α

(C) 90°

(D) 45°

Answer: (C) 90° · The council's preliminary key

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Q519 AP EAPCET 2021 · 24 Aug · Shift 1 MCQ

If the lines $x^2 + kxy + y^2 = 0$ and $x + y = 1$ make up the sides of an equilateral triangle, then the value of k^2 equals _____

(A) 4
(B) 16
(C) 9
(D) 64

Answer: (B) 16 · The council's preliminary key

Q520 AP EAPCET 2021 · 24 Aug · Shift 1 MCQ

If the product of the perpendiculars from origin to the pairs of lines $xy + x + y + 1 = 0$, $x^2 - y^2 + 2x + 1 = 0$ and $2x^2 + 3xy - 2y^2 + 2x + 1 = 0$ respectively are p_1, p_2, p_3, then

(A) $p_1 < p_2 < p_3$
(B) $p_1 < p_3 < p_2$
(C) $p_3 < p_2 < p_1$
(D) $p_2 < p_1 < p_3$

Answer: (C) $p_3 < p_2 < p_1$ · The council's preliminary key

Q521 AP EAPCET 2021 · 24 Aug · Shift 2 MCQ

A straight rod of length 4 units slides such that its ends 'A' and 'B' always lie on the x and y axes respectively. Then the locus of the centroid of ΔOAB is _____

(A) $x^2 + y^2 = 4$
(B) $x^2 + y^2 = 3$
(C) $x^2 + y^2 = \frac{9}{16}$
(D) $x^2 + y^2 = \frac{16}{9}$

Answer: (D) $x^2 + y^2 = \frac{16}{9}$ · The council's preliminary key

Q522 AP EAPCET 2021 · 24 Aug · Shift 2 MCQ

Find the transformed equation of the curve $x^2 + 2\sqrt{3}xy - y^2 = 8$ when the axes are rotated through an angle $\frac{\pi}{3}$.

(A) $x^2 + y^2 + 2\sqrt{3}xy = 8$
(B) $x^2 + y^2 - 2\sqrt{3}xy = 8$
(C) $x^2 - y^2 + 2\sqrt{3}xy = 8$
(D) $x^2 - y^2 - 2\sqrt{3}xy = 8$

Answer: (D) $x^2 - y^2 - 2\sqrt{3}xy = 8$ · The council's preliminary key

Q523 AP EAPCET 2021 · 24 Aug · Shift 2 MCQ

If the line $px - qy = r$ intersects the coordinate axes at $(a, 0)$ and $(0, b)$ then the value of $(a + b)$ is equal to _____

(A) $\frac{r(q+p)}{pq}$
(B) $\frac{r(q-p)}{pq}$
(C) $\frac{r(p-q)}{pq}$
(D) $\frac{r(p-q)}{p+q}$

Answer: (B) $\frac{r(q-p)}{pq}$ · The council's preliminary key

Q524 AP EAPCET 2021 · 24 Aug · Shift 2 MCQ

If a pair of lines drawn through the origin forms an isosceles right-angled triangle with the line $2x + 3y = 6$, then those lines are _____

(A) $x - 5y = 0,\ 5x + y = 0$
(B) $3x - y = 0,\ x + 3y = 0$
(C) $5x - y = 0,\ x + 5y = 0$
(D) $x - 3y = 0,\ 3x + y = 0$

Answer: (A) $x - 5y = 0,\ 5x + y = 0$ · The council's preliminary key

Q525 AP EAPCET 2021 · 24 Aug · Shift 2 MCQ

The number of lines that can be drawn through the point $(4, -5)$ at a distance of 10 units from the point $(1, 3)$ is _____

(A) 1
(B) 0
(C) 2
(D) ∞

Answer: (B) 0 · The council's preliminary key

Q526 AP EAPCET 2021 · 24 Aug · Shift 2 MCQ

If a point 'P' on the line $3x + 5y = 15$ is equidistant from the coordinate axes, then P lies _____

(A) Only in the first quadrant
(B) Either in first or in second quadrant
(C) Either in first or in third quadrant
(D) Only in the third quadrant

Answer: (B) Either in first or in second quadrant · The council's preliminary key

Q527 AP EAPCET 2021 · 24 Aug · Shift 2 MCQ

Find the length of the intercept cut by the pair of lines $2x^2 + 4xy - 4y^2 - 6x - 8y + 7 = 0$ over the y -axis.

(A) $\sqrt{12}$
(B) $\sqrt{10}$
(C) $\sqrt{11}$
(D) $\sqrt{13}$

Answer: (C) $\sqrt{11}$ · The council's preliminary key

Q528 AP EAPCET 2021 · 24 Aug · Shift 2 MCQ

If the lines $x^2 + 2xy - 35y^2 - 4x + 44y - 12 = 0$ and $5x + \lambda y - 8 = 0$ are concurrent then λ equals _____

(A) 0
(B) 1
(C) -1
(D) 2

Answer: (D) 2 · The council's preliminary key

Q529 AP EAPCET 2021 · 24 Aug · Shift 2 MCQ

If the equation $2x^2 + kxy - 6y^2 + 3x + y + 1 = 0,\ (k > 0)$ represents a pair of straight lines, then their point of intersection is _____

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(A) $\left(\frac{5}{8}, \frac{1}{8}\right)$
(B) $\left(\frac{5}{8}, \frac{-1}{8}\right)$
(C) $\left(\frac{-5}{8}, \frac{-1}{8}\right)$
(D) $\left(\frac{-5}{8}, \frac{1}{8}\right)$

Answer: (C) $\left(\frac{-5}{8}, \frac{-1}{8}\right)$ · The council's preliminary key

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Q530 AP EAPCET 2021 · 24 Aug · Shift 2 MCQ

If one of the lines given by the equation $2x^2 + axy + 3y^2 = 0$ coincide with one of those given by the equation $2x^2 + bxy - 3y^2 = 0$, while the other two lines are perpendicular to each other, then the values of a and b are

(A) $a = -5$ & $b = 1$
(B) $a = -4$ & $b = -1$
(C) $a = 4$ & $b = 1$
(D) $a = -5$ & $b = -1$

Answer: (D) $a = -5$ & $b = -1$ · The council's preliminary key

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Q531 AP EAPCET 2021 · 24 Aug · Shift 2 MCQ

The circumcentre of the triangle formed by the points $A(1, \sqrt{3})$, $B(-1, -\sqrt{3})$ and $(3, -\sqrt{3})$ is _____

(A) $(1, -\sqrt{3})$
(B) $\left(-1, \frac{-1}{\sqrt{3}}\right)$
(C) $(0, 0)$
(D) $\left(1, \frac{-1}{\sqrt{3}}\right)$

Answer: (D) $\left(1, \frac{-1}{\sqrt{3}}\right)$ · The council's preliminary key

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Q532 AP EAPCET 2021 · 23 Aug · Shift 1 MCQ

The sum of the squares of the distances of a moving point from 2 fixed points $A(a, 0)$ and $B(-a, 0)$ is equal to a constant $2c^2$, then the equation of its locus is _____

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(A) $x^2 + y^2 = c^2 - a^2$
(B) $x^2 + y^2 = c^2 + a^2$
(C) $2x^2 + 2y^2 = c^2 + a^2$
(D) $2x^2 - 2y^2 = c^2 + a^2$

Answer: (A) $x^2 + y^2 = c^2 - a^2$ · The council's preliminary key

Q533 AP EAPCET 2021 · 23 Aug · Shift 1 MCQ

The transformed equation $3x^2 + 3y^2 + 2xy = 2$, when the coordinate axes are rotated through an angle 45° is _____

(A) $x^2 + 2y^2 = 1$
(B) $2x^2 + y^2 = 1$
(C) $x^2 + y^2 = 1$
(D) $x^2 + 3y^2 = 1$

Answer: (B) $2x^2 + y^2 = 1$ · The council's preliminary key

Q534 AP EAPCET 2021 · 23 Aug · Shift 1 MCQ

Find the equation of a straight line which passes through the point $(-1, -1)$ and makes an angle 150° with positive direction of x-axis.

(A) $\sqrt{3}x + y = 1$
(B) $\sqrt{3}y + x + (1 + \sqrt{3}) = 0$
(C) $x + \sqrt{3}y + (\sqrt{3} - 1) = 0$
(D) $x + y = 0$

Answer: (B) $\sqrt{3}y + x + (1 + \sqrt{3}) = 0$ · The council's preliminary key

Q535 AP EAPCET 2021 · 23 Aug · Shift 1 MCQ

The ratio in which the line joining points $A(-1, -1)$ and $B(2, 1)$ divides the line joining $C(3, 4)$ and $D(1, 2)$

(A) $7 : 5$ Internally
(B) $7 : 5$ Externally
(C) $7 : 11$ Internally
(D) $7 : 11$ Externally

Answer: (B) $7 : 5$ **Externally** · The council's preliminary key

Q536 AP EAPCET 2021 · 23 Aug · Shift 1 MCQ

The lines $(a + 2b)x + (a - 3b)y = a - b$ for different values of a and b pass through the fixed point whose coordinates are _____

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(A) $\left(\frac{2}{5}, \frac{2}{5}\right)$
(B) $\left(\frac{3}{5}, \frac{3}{5}\right)$
(C) $\left(\frac{2}{5}, \frac{3}{5}\right)$
(D) $\left(\frac{3}{5}, \frac{2}{5}\right)$

Answer: (C) $\left(\frac{2}{5}, \frac{3}{5}\right)$ · The council's preliminary key

Q537 AP EAPCET 2021 · 23 Aug · Shift 1 MCQ

If (α, β) is the image of the point $(3, -4)$ with respect to the line $4x - y - 1 = 0$, then the value of $\beta - \alpha =$ _____

(A) $\frac{-31}{17}$
(B) $\frac{-107}{17}$
(C) $\frac{31}{17}$
(D) $\frac{13}{71}$

Answer: (C) $\frac{31}{17}$ · The council's preliminary key

Q538 AP EAPCET 2021 · 23 Aug · Shift 1 MCQ

If $h^2 = ab$, then the slopes of lines represented by $ax^2 - 2hxy + by^2 = 0$ would be in the ratio _____

(A) $1 : 2$
(B) $2 : 1$
(C) $2 : 3$
(D) $1 : 1$

Answer: (D) $1 : 1$ · The council's preliminary key

Q539 AP EAPCET 2021 · 23 Aug · Shift 1 MCQ

If $ax^2 + 6xy + by^2 - 10x + 10y - 6 = 0$ represents a pair of perpendicular lines then the value of $|a|$ equals _____

(A) 6
(B) 4
(C) 2
(D) 3

Answer: (B) 4 · The council's preliminary key

Q540 AP EAPCET 2021 · 23 Aug · Shift 1 MCQ

A chord through the point $(1, -2)$ cuts the curve $3x^2 - y^2 - 2x + 4y = 0$ at P and Q. If PQ subtends an angle 'θ' at the origin, then θ equals _____

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(A) 60°
(B) 15°
(C) 75°
(D) 90°

Answer: (D) 90° · The council's preliminary key

Q541 AP EAPCET 2021 · 23 Aug · Shift 1 MCQ

If p_1, p_2 denote the lengths of perpendiculars from $(2, 3)$ onto the lines given by $15x^2 + 31xy + 14y^2 = 0$, and if $p_1 > p_2$, then $p_1^2 + \frac{1}{74} - p_2^2 + \frac{1}{13} =$

(A) -2
(B) 0
(C) 2
(D) 1

Answer: (C) 2 · The council's preliminary key

Q542 AP EAPCET 2021 · 23 Aug · Shift 2 MCQ

Given points $A(6, 0)$, $B(0, 4)$ and O as the origin, find the locus of a point P such that area of triangle POB is 2 times the area of triangle POA.

(A) $x^2 - 3y^2 = 0$
(B) $x^2 + 3y^2 = 0$
(C) $x^2 - 9y^2 = 0$
(D) $x^2 - 4y^2 = 0$

Answer: (C) $x^2 - 9y^2 = 0$ · The council's preliminary key

Q543 AP EAPCET 2021 · 23 Aug · Shift 2 MCQ

If a square $ABCD$ where $A(0, 0), B(2, 0), C(2, 2), D(0, 2)$ undergoes the following transformations successively, then the final figure would be a _____
(i) $f_1(x, y) \to (y, x)$; (ii) $f_2(x, y) \to (x + 3y, y)$; (iii) $f_3(x, y) \to \left(\frac{x-y}{2}, \frac{x+y}{2}\right)$

(A) Square
(B) Rhombus
(C) Rectangle
(D) Parallelogram

Answer: (D) Parallelogram · Checked by our team

Q544 AP EAPCET 2021 · 23 Aug · Shift 2 MCQ

The perpendicular bisector of line segment joining the points $P(1, 4)$ and $Q(k, 3)$ has y-intercept '-4'. Then a possible value of 'k' among the following is _____

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(A) 2
(B) -2
(C) -4
(D) -1

Answer: (C) -4 · The council's preliminary key

Q545 AP EAPCET 2021 · 23 Aug · Shift 2 MCQ

The distance between the lines $3x + 4y = 9$ and $6x + 8y = 15$ is

(A) $\frac{3}{2}$
(B) $\frac{3}{10}$
(C) 6
(D) $\frac{3}{5}$

Answer: (B) $\frac{3}{10}$ · The council's preliminary key

Q546 AP EAPCET 2021 · 23 Aug · Shift 2 MCQ

The angle between the straight lines $3x + 4y + 9 = 0$ and $x - 7y - 22 = 0$ is _____

(A) $\frac{\pi}{4}$
(B) $\frac{\pi}{6}$
(C) $\frac{\pi}{3}$
(D) $\frac{\pi}{8}$

Answer: (A) $\frac{\pi}{4}$ · The council's preliminary key

Q547 AP EAPCET 2021 · 23 Aug · Shift 2 MCQ

The equation of the lines through the point $(3, 2)$ which makes an angle of 45° with the line $x - 2y = 3$ are

(A) $3x - y = 7$ & $x + 3y = 9$
(B) $x - 3y = 7$ & $3x + y = 9$
(C) $x - y = 3$ & $x + y = 2$
(D) $2x + y = 7$ & $x - 2y = 9$

Answer: (A) $3x - y = 7$ & $x + 3y = 9$ · The council's preliminary key

Q548 AP EAPCET 2021 · 23 Aug · Shift 2 MCQ

If θ is the angle between the lines $x^2 + 2hxy + by^2 = 0$ then the angle between $x^2 + 2xy \sec\theta + y^2 = 0$ is _____

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(A) θ
(B) 2θ
(C) $\frac{\theta}{2}$
(D) 3θ

Answer: (A) θ · The council's preliminary key

Q549 AP EAPCET 2021 · 23 Aug · Shift 2 MCQ

If the pairs of straight lines $x^2 - 2pxy - y^2 = 0$ and $x^2 - 2qxy - y^2 = 0$ be such that each pair bisects the angle between the other pair, then _____

(A) $pq = 1$
(B) $pq = -1$
(C) $pq = 2$
(D) $pq = -2$

Answer: (B) $pq = -1$ · The council's preliminary key

Q550 AP EAPCET 2021 · 23 Aug · Shift 2 MCQ

If the equation $8x^2 + 8xy + 2y^2 + 26x + 13y + 15 = 0$ represents a pair of parallel straight lines then the distance between them is _____

(A) $\frac{7}{\sqrt{5}}$
(B) $\frac{7}{2\sqrt{5}}$
(C) $\frac{2}{\sqrt{5}}$
(D) $\frac{7}{\sqrt{3}}$

Answer: (B) $\frac{7}{2\sqrt{5}}$ · The council's preliminary key

Q551 AP EAPCET 2021 · 23 Aug · Shift 2 MCQ

The area of the triangle formed by the line $x + y = 4$ and angular bisectors of the pair of lines $x^2 - y^2 + 2y - 1 = 0$ is _____ sq.units

(A) 9
(B) 4.5
(C) 1.5
(D) 0.5

Answer: (B) 4.5 · The council's preliminary key

Q552 AP EAPCET 2021 · 20 Aug · Shift 1 MCQ

The locus of a point which is at a distance of 4 units from $(3, -2)$ in xy-plane is _____

(A) $x^2 + y^2 + 6x - 4y + 16 = 0$
(B) $x^2 + y^2 - 6x - 4y + 3 = 0$
(C) $x^2 + y^2 - 6x + 4y - 16 = 0$
(D) $x^2 + y^2 - 6x + 4y - 3 = 0$

Answer: (D) $x^2 + y^2 - 6x + 4y - 3 = 0$ · The council's preliminary key

Q553 AP EAPCET 2021 · 20 Aug · Shift 1 MCQ

When the axes are rotated through an angle 45°, the new coordinates of a point P are $(1, -1)$. The coordinates of P in the original system are _____

(A) $(\sqrt{2}, \sqrt{2})$
(B) $(\sqrt{2}, 0)$
(C) $(0, \sqrt{2})$
(D) $(-\sqrt{2}, 0)$

Answer: (B) $(\sqrt{2}, 0)$ · The council's preliminary key

Q554 AP EAPCET 2021 · 20 Aug · Shift 1 MCQ

Find the equation of a straight line passing through $(-5, 6)$ and cutting off equal intercepts on the co-ordinate axes.

(A) $6x - 5y = 30$
(B) $x - y = -11$
(C) $x + y = 11$
(D) $x + y = 1$

Answer: (D) $x + y = 1$ · The council's preliminary key

Q555 AP EAPCET 2021 · 20 Aug · Shift 1 MCQ

Line has slope m and y intercept 4. The distance between the origin and the line is equal to _____

(A) $\frac{4}{\sqrt{1 - m^2}}$
(B) $\frac{4}{\sqrt{m^2 - 1}}$
(C) $\frac{4}{\sqrt{m^2 + 1}}$
(D) $\frac{4m}{\sqrt{m^2 + 1}}$

Answer: (C) $\frac{4}{\sqrt{m^2 + 1}}$ · The council's preliminary key

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Q556 AP EAPCET 2021 · 20 Aug · Shift 1 MCQ

The equation of the base of an equilateral triangle is $x + y = 2$ and one vertex is $(2, -1)$, then the length of the side of the triangle is _____

(A) $\sqrt{3/2}/\sqrt{2/3}$
(B) $\sqrt{2}$
(C) $\sqrt{2/3}$
(D) $\sqrt{3/2}$

Answer: (C) $\sqrt{2/3}$ · The council's preliminary key

Q557 AP EAPCET 2021 · 20 Aug · Shift 1 MCQ

The equation of a straight line which passes through the point $(a\cos^3\theta, a\sin^3\theta)$ and perpendicular to $(x\sec\theta + y\csc\theta) = a$ is

(A) $\frac{x}{a} + \frac{y}{b} = a\cos\theta$
(B) $x\cos\theta - y\sin\theta = a\cos 2\theta$
(C) $x\cos\theta + y\sin\theta = a\cos 2\theta$
(D) $x\cos\theta + y\sin\theta - a\cos 2\theta = 1$

Answer: (B) $x\cos\theta - y\sin\theta = a\cos 2\theta$ · The council's preliminary key

Q558 AP EAPCET 2021 · 20 Aug · Shift 1 MCQ

The acute angle between lines $6x^2 + 11xy - 10y^2 = 0$ is _____

(A) $\mathrm{Tan}^{-1}\left(\frac{\sqrt{361}}{2}\right)$
(B) $\mathrm{Tan}^{-1}\left(\frac{\sqrt{361}}{4}\right)$
(C) $\mathrm{Tan}^{-1}\left(\frac{361}{2}\right)$
(D) $\mathrm{Tan}^{-1}\left(\frac{361}{4}\right)$

Answer: (B) $\mathrm{Tan}^{-1}\left(\frac{\sqrt{361}}{4}\right)$ · The council's preliminary key

Q559 AP EAPCET 2021 · 20 Aug · Shift 1 MCQ

If the lines, joining the origin to the points of intersection of the curve $2x^2 - 2xy + 3y^2 + 2x - y - 1 = 0$ and the line $x + 2y = k$, are at right angles, then k^2 equals _____

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(A) 4
(B) 3
(C) 2
(D) 1

Answer: (D) 1 · The council's preliminary key

Q560 AP EAPCET 2021 · 20 Aug · Shift 1 MCQ

The equation of bisectors of the angle between the lines represented by $3x^2 - 5xy + 4y^2 = 0$ is

(A) $9x^2 + 6y^2 - 2x = 0$
(B) $5(x^2 - y^2) = 2xy$
(C) $3x^2 + 2xy - y^2 = 0$
(D) $5x^2 + xy + 4y^2 = 0$

Answer: (B) $5(x^2 - y^2) = 2xy$ · The council's preliminary key

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Q561 AP EAPCET 2021 · 20 Aug · Shift 1 MCQ

If the bisectors of the pair of lines $x^2 - 2mxy - y^2 = 0$ is represented by $x^2 - 2nxy - y^2 = 0$, then _____

(A) $mn + 1 = 0$
(B) $mn - 1 = 0$
(C) $m + n = 0$
(D) $m - n = 0$

Answer: (A) $mn + 1 = 0$ · The council's preliminary key

Q562 AP EAPCET 2021 · 20 Aug · Shift 1 MCQ

If the vertices of the triangles are $(1, 2, 3), (2, 3, 1), (3, 1, 2)$ and if H, G, S and I respectively denote its orthocenter, centroid, circumcenter and incenter, then $H + G + S + I =$

(A) $(2, 2, 2)$
(B) $(4, 4, 4)$
(C) $(6, 6, 6)$
(D) $(8, 8, 8)$

Answer: (D) $(8, 8, 8)$ · The council's preliminary key

Q563 AP EAPCET 2021 · 20 Aug · Shift 2 MCQ

The point of intersection of the lines joining points $\hat{i} + 2\hat{j},\ 2\hat{i} - \hat{j}$ and $-\hat{i},\ 2\hat{i}$ is

(A) $\frac{5}{3}\hat{i}$
(B) $\frac{3\hat{i}+\hat{j}}{5}$
(C) $\frac{-3}{5}\hat{i}$
(D) $\frac{2}{5}\hat{j}$

Answer: (A) $\frac{5}{3}\hat{i}$ · The council's preliminary key

Q564 AP EAPCET 2021 · 20 Aug · Shift 2 MCQ

The point to which the origin should be shifted in order to eliminate the x and y terms from the equation $9x^2 + 4y^2 + 10x + 12y + 1 = 0$ is _____

(A) $\left(\frac{5}{9}, \frac{3}{2}\right)$
(B) $\left(\frac{-5}{2}, \frac{-3}{9}\right)$
(C) $\left(\frac{-5}{9}, \frac{-3}{2}\right)$
(D) $\left(\frac{-3}{2}, \frac{-5}{9}\right)$

Answer: (C) $\left(\frac{-5}{9}, \frac{-3}{2}\right)$ · The council's preliminary key

Q565 AP EAPCET 2021 · 20 Aug · Shift 2 MCQ

If $A(1, 3)$ and $C(7, 5)$ are two opposite vertices of a square, then find the equation of a side passing through A.

(A) $x = y$
(B) $x - 2y + 1 = 0$
(C) $x - 3y + 8 = 0$
(D) $2x - y + 1 = 0$

Answer: (D) $2x - y + 1 = 0$ · The council's preliminary key

Q566 AP EAPCET 2021 · 20 Aug · Shift 2 MCQ

'C' is the centroid of the triangle with vertices $(3, -1), (1, 3)$ and $(2, 4)$. Let 'P' be the point of intersection of the lines $x + 3y - 1 = 0$ and $3x - y + 1 = 0$. Then a line which passes through both points C and P would also passes through the point _____

(A) $(-9, -7)$
(B) $(-9, -6)$
(C) $(7, 6)$
(D) $(9, 7)$

Answer: (B) $(-9, -6)$ · The council's preliminary key

Q567 AP EAPCET 2021 · 20 Aug · Shift 2 MCQ

The distance of the point $(1, 2)$ from the line $x + y + 5 = 0$ measured along the line parallel to $3x - y = 7$ is equal to _____

(A) $4\sqrt{10}$
(B) 40
(C) $\sqrt{40}$
(D) $2\sqrt{20}$

Answer: (C) $\sqrt{40}$ · The council's preliminary key

Q568 AP EAPCET 2021 · 20 Aug · Shift 2 MCQ

Find the equation of a line which passes through $(2\cos^3(\theta), 2\sin^3(\theta))$ and is perpendicular to the line $x\cos(\theta) - y\sin(\theta) = 2\cos(2\theta)$.

(A) $x\sec(\theta) + y\operatorname{cosec}(\theta) = 2$
(B) $x\operatorname{cosec}(\theta) + y\sec(\theta) = 2$
(C) $x\sin(\theta) + y\cos(\theta) = 2$
(D) $x\cos(\theta) + y\sin(\theta) = 2$

Answer: (A) $x\sec(\theta) + y\operatorname{cosec}(\theta) = 2$ · The council's preliminary key

Q569 AP EAPCET 2021 · 20 Aug · Shift 2 MCQ

The value of p for which the equation $x^2 + pxy + y^2 - 5x - 7y + 6 = 0$ represents a pair of straight lines is _____

(A) $\frac{5}{2}$
(B) 5
(C) 2
(D) $\frac{2}{5}$

Answer: (A) $\frac{5}{2}$ · The council's preliminary key

Q570 AP EAPCET 2021 · 20 Aug · Shift 2 MCQ

If one of the lines represented by $ax^2 + 2hxy + by^2 = 0$ passes through $(2, 3)$ and the other passes through $(4, 5)$, then $a + 2h + b$ equals _____

(A) 0
(B) 1
(C) 2
(D) -1

Answer: (B) 1 · The council's preliminary key

Q571 AP EAPCET 2021 · 20 Aug · Shift 2 MCQ

If the lines represented by the equation $2x^2 - pxy + 2y^2 = 0$ are real, then the value of 'p' lies in the interval _____

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(A) $[-4, 4]$
(B) $[-4, 4)$
(C) $(-\infty, -4) \cup (4, \infty)$
(D) $(-4, 4]$

Answer: (C) $(-\infty, -4) \cup (4, \infty)$ · The council's preliminary key

Q572 AP EAPCET 2021 · 19 Aug · Shift 1 MCQ

If the axes are rotated through an angle 45°, the coordinates of the point $(2\sqrt{2}, -3\sqrt{2})$ in the new system are _____

(A) $(3\sqrt{3}, -5)$
(B) $(-1, -5)$
(C) $(5\sqrt{3}, -7)$
(D) $(7, -\sqrt{3})$

Answer: (B) $(-1, -5)$ · The council's preliminary key

Q573 AP EAPCET 2021 · 19 Aug · Shift 1 MCQ

The sum of the squares of the intercepts made the line $5x - 2y = 10$ on the co-ordinate axes equals _____

(A) 29
(B) 25
(C) 4
(D) 100

Answer: (A) 29 · The council's preliminary key

Q574 AP EAPCET 2021 · 19 Aug · Shift 1 MCQ

For three consecutive odd integers a, b and c, if the variable line $ax + by + c = 0$ always passes through the point (α, β), the value of $\alpha^2 + \beta^2$ equals _____

(A) 9
(B) 4
(C) 5
(D) 3

Answer: (C) 5 · The council's preliminary key

Q575 AP EAPCET 2021 · 19 Aug · Shift 1 MCQ

If $2x + 3y + 4 = 0$ is the perpendicular bisector of the line segment joining the points $A(1, 2)$ and $B(\alpha, \beta)$, then the value of $13\alpha + 13\beta$ equals _____

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(A) -81
(B) -99
(C) 99
(D) 81

Answer: (A) -81 · The council's preliminary key

Q576 AP EAPCET 2021 · 19 Aug · Shift 1 MCQ

The equation of the pair of straight lines perpendicular to the pair $2x^2 + 3xy + 2y^2 + 10x + 5y = 0$ and passing though the origin is _____

(A) $2x^2 + 5xy + 2y^2 = 0$
(B) $2x^2 - 3xy + 2y^2 = 0$
(C) $2x^2 + 3xy + y^2 = 0$
(D) $2x^2 - 5xy + 2y^2 = 0$

Answer: (B) $2x^2 - 3xy + 2y^2 = 0$ · The council's preliminary key

Q577 AP EAPCET 2021 · 19 Aug · Shift 1 MCQ

If the centroid of the triangle formed by the lines $2y^2 + 5xy - 3x^2 = 0$ and $x + y = k$ is $\left(\frac{1}{18}, \frac{11}{18}\right)$, then the value of 'k' equals _____

(A) -1
(B) 0
(C) 1
(D) 2

Answer: (C) 1 · The council's preliminary key

Q578 AP EAPCET 2021 · 19 Aug · Shift 1 MCQ

If 'm_1' and 'm_2', $(m_1 > m_2)$ are the slopes of the lines represented by $5x^2 - 8xy + 3y^2 = 0$, then $m_1 : m_2$ equals _____

(A) $5 : 1$
(B) $2 : 1$
(C) $5 : 3$
(D) $3 : 2$

Answer: (C) $5 : 3$ · The council's preliminary key

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Q579 AP EAPCET 2021 · 19 Aug · Shift 1 MCQ

If the slope of one of the lines represented by $ax^2 + 2hxy + by^2 = 0$ is the square of the other then, $\left|\frac{a+b}{h} + \frac{8h^2}{ab}\right| =$

(A) 3
(B) 2
(C) 6
(D) 4

Answer: (C) 6 · The council's preliminary key

Q580 AP EAPCET 2021 · 19 Aug · Shift 2 MCQ

Given two fixed points $A(-2,1)$ and $B(3,0)$, find the locus of a point P which moves such that the angle $\angle APB$ is always a right angle.

(A) $x^2 + y^2 + x + y + 6 = 0$
(B) $x^2 + y^2 - x - y - 6 = 0$
(C) $x + y + 6 = 0$
(D) $2x^2 + 2y^2 - 2x - 2y + 1 = 0$

Answer: (B) $x^2 + y^2 - x - y - 6 = 0$ · The council's preliminary key

Q581 AP EAPCET 2021 · 19 Aug · Shift 2 MCQ

When the coordinate axes are rotated through an angle 135°, the coordinates of a point P in the new system are known to be $(4,-3)$. Then find the coordinates of P in the original system.

(A) $\left(\frac{1}{\sqrt{2}}, \frac{7}{\sqrt{2}}\right)$
(B) $\left(\frac{-1}{\sqrt{2}}, \frac{7}{\sqrt{2}}\right)$
(C) $\left(\frac{1}{\sqrt{2}}, \frac{-7}{\sqrt{2}}\right)$
(D) $\left(\frac{-1}{\sqrt{2}}, \frac{-7}{\sqrt{2}}\right)$

Answer: (B) $\left(\frac{-1}{\sqrt{2}}, \frac{7}{\sqrt{2}}\right)$ · The council's preliminary key

Q582 AP EAPCET 2021 · 19 Aug · Shift 2 MCQ

If $A(4,7)$, $B(-7,8)$ and $C(1,2)$ are the vertices of ΔABC, then the equation of perpendicular bisector of the side AB is _____

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(A) $x - 11y - 24 = 0$
(B) $11x + y + 24 = 0$
(C) $11x - y + 24 = 0$
(D) $11x + y - 24 = 0$

Answer: (C) $11x - y + 24 = 0$ · The council's preliminary key

Q583 AP EAPCET 2021 · 19 Aug · Shift 2 MCQ

The ratio in which the straight line $3x + 4y = 6$ divides the join of the points $(2, -1)$ and $(1, 1)$ is _____

(A) $1 : 4$
(B) $8 : 13$
(C) $4 : 1$
(D) $-4 : 1$

Answer: (C) $4 : 1$ · The council's preliminary key

Q584 AP EAPCET 2021 · 19 Aug · Shift 2 MCQ

If the orthocenter of the triangle formed by the lines $2x + 3y - 1 = 0$, $x + 2y + 1 = 0$ and $ax + by - 1 = 0$ lies at origin, then $\frac{1}{a} + \frac{1}{b} =$

(A) 0
(B) $\frac{1}{60}$
(C) $\frac{1}{8}$
(D) 4

Answer: (B) $\frac{1}{60}$ · The council's preliminary key

Q585 AP EAPCET 2021 · 19 Aug · Shift 2 MCQ

The equation $8x^2 - 24xy + 18y^2 - 6x + 9y - 5 = 0$ represents a _____

(A) pair of perpendicular lines
(B) pair of parallel lines
(C) pair of coincident lines
(D) parabola

Answer: (B) pair of parallel lines · The council's preliminary key

Q586 AP EAPCET 2021 · 19 Aug · Shift 2 MCQ

Find the angle between the pair of lines represented by the equation $x^2 + 4xy + y^2 = 0$.

(A) 30°
(B) 45°
(C) 60°
(D) 90°

Answer: (C) 60° · The council's preliminary key

Q587 AP EAPCET 2021 · 19 Aug · Shift 2 MCQ

If the acute angle between lines $ax^2 + 2hxy + by^2 = 0$ is $\frac{\pi}{4}$, then $4h^2 =$ _____

(A) $a^2 + 4ab + b^2$
(B) $a^2 + 6ab + b^2$
(C) $(a - 2b)(2a + b)$
(D) $a^2 - 6ab + b^2$

Answer: (B) $a^2 + 6ab + b^2$ · The council's preliminary key

Q588 AP EAPCET 2021 · 19 Aug · Shift 2 MCQ

The angle between the lines represented by $\cos\theta(\cos\theta + 1)x^2 - (2\cos\theta + \sin^2\theta)xy + (1 - \cos\theta)y^2 = 0$ is _____

(A) $\frac{\pi}{4}$
(B) $\frac{\pi}{6}$
(C) $\frac{\pi}{3}$
(D) $\frac{\pi}{12}$

Answer: (A) $\frac{\pi}{4}$ · The council's preliminary key

Q589 TS EAMCET 2021 · 6 Aug · Shift 1 MCQ

Let S be the set of points on X-axis lying at a distance of d units from $(3, 4)$. Which of the following is true?

(A) S is an empty set if d < 4
(B) S contains infinitely many points if d < 4
(C) S contains at least two points if d $= 4$
(D) S contains exactly three points for any d > 4

Answer: (A) S is an empty set if d < 4 · The council's preliminary key

Q590 TS EAMCET 2021 · 6 Aug · Shift 1 MCQ

If the coordinate axes are rotated in positive direction by 45° without changing the origin, then the transformed equation of $3x^2 + 3y^2 + 2xy - 2 = 0$ is

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(A) $2X^2 + Y^2 = 1$
(B) $X^2 + 2Y^2 = 1$
(C) $X^2 - 2Y^2 = 1$
(D) $2X^2 - Y^2 = 1$

Answer: (A) $2X^2 + Y^2 = 1$ · The council's preliminary key

Q591 TS EAMCET 2021 · 6 Aug · Shift 1 MCQ

If the equation of a line parallel to $3x - 2y + 5 = 0$ and at a distance of 5 units from it is $3x - 2y + C = 0$, then $C =$

(A) $5\left(\frac{1 \pm \sqrt{13}}{\sqrt{13}}\right)$
(B) $5(\pm\sqrt{13} + 1)$
(C) $5(\sqrt{13} \pm 1)$
(D) $5\left(\frac{-1 \pm \sqrt{13}}{\sqrt{13}}\right)$

Answer: (B) $5(\pm\sqrt{13} + 1)$ · The council's preliminary key

Q592 TS EAMCET 2021 · 6 Aug · Shift 1 MCQ

If a line L passes through the point of intersection of the lines $2x + 3y + 1 = 0$ and $x + y - 3 = 0$ and the angle made by the line L with X-axis measured in positive direction from the positive X-axis is $\text{Tan}^{-1}\frac{2}{3}$, then the sum of the intercepts made by this line on the axes is

(A) $\frac{-1}{41}$
(B) $\frac{205}{6}$
(C) $\frac{5}{41}$
(D) $\frac{41}{6}$

Answer: (D) $\frac{41}{6}$ · The council's preliminary key

Q593 TS EAMCET 2021 · 6 Aug · Shift 1 MCQ

Match the items given in List-I to the items given in List-II

A) Line passing through $(-4, 3)$ and having intercepts in the ratio 5:3

B) Line passing through P$(2, -5)$ such that P bisects the part intercepted between the axes

C) Line parallel to $2x - 3y + 5 = 0$ with x-intercept $\frac{2}{5}$ is

D) Line perpendicular to $5x + 2y + 7 = 0$ with y-intercept $\frac{4}{5}$ is

I) $2x - 5y + 4 = 0$

II) $3x + 5y = 3$

III) $10x - 15y + 4 = 0$
IV) $10x - 15y = 4$
V) $5x - 2y - 20 = 0$
The correct match is

(A) A-II, B-V, C-III, D-I
(B) A-V, B-I, C-III, D-II
(C) A-II, B-V, C-IV, D-I
(D) A-II, B-I, C-IV, D-V

Answer: (C) A-II, B-V, C-IV, D-I · The council's preliminary key

Q594 TS EAMCET 2021 · 6 Aug · Shift 1 MCQ

If (h, k) is the image of the point $(2, -3)$ with respect to the line $5x - 3y = 2$, then $h + k =$

(A) -3
(B) $\frac{-3}{34}$
(C) $\frac{-1}{34}$
(D) 5

Answer: (A) -3 · The council's preliminary key

Q595 TS EAMCET 2021 · 6 Aug · Shift 1 MCQ

If the product of the lengths of the perpendiculars drawn from the point $(-1, 5)$ to the pair of lines $2x^2 - xy + ky^2 + 6x + y + 4 = 0$ is $\frac{65}{\sqrt{26}}$, then $37k^2 + 92k$

(A) 56
(B) 53
(C) 57
(D) 55

Answer: (C) 57 · The council's preliminary key

Q596 TS EAMCET 2021 · 6 Aug · Shift 1 MCQ

If the pair of lines joining the origin to the points of intersection of the line $x + y = 1$ with the curve $x^2 + y^2 + 2hxy + gx + fy + 1 = 0$ are at right angles, then the point (g, f) lies on the line

(A) $2x + y = 5$
(B) $x - y = 4$
(C) $x + y + 4 = 0$
(D) $x + 2y = 5$

Answer: (C) $x + y + 4 = 0$ · The council's preliminary key

Q597 TS EAMCET 2021 · 6 Aug · Shift 2 MCQ

If $A(2,3)$, $B(3,-2)$ are two fixed points and $P(x,y)$ is a variable point satisfying the condition $|PA - PB| = 2$, then the locus of P is

(A) $(x+y+1)^2 = 4\left[(x-3)^2+(y+2)^2\right]$
(B) $(x-5y-2)^2 = 4\left[(x-2)^2+(y-3)^2\right]$
(C) $(x-5y-2)^2 = 4\left[(x-3)^2+(y+2)^2\right]$
(D) $(x+y+1)^2 = 4\left[(x-2)^2+(y-3)^2\right]$

Answer: (C) $(x-5y-2)^2 = 4\left[(x-3)^2+(y+2)^2\right]$ · The council's preliminary key

Q598 TS EAMCET 2021 · 6 Aug · Shift 2 MCQ

The equation of a curve C is transformed to $X^2+Y^2-6X+8Y+21=0$ by the rotation of coordinate axes about the origin through an angle of $\frac{\pi}{4}$ in the positive direction of X-axis. If $ax^2+by^2+cx+dy+e=0$ is the equation of the curve C before the transformation, then $(a+b+c^2+d^2-5e)^2=0$

(A) 4
(B) 9
(C) 16
(D) 25

Answer: (B) 9 · The council's preliminary key

Q599 TS EAMCET 2021 · 6 Aug · Shift 2 MCQ

The equation of a given straight line is $\frac{x-x_1}{\cos\theta} = \frac{y-y_1}{\sin\theta} = r$. If the equation of the line perpendicular to the given line and passing through (α,β) is $\frac{x}{a}+\frac{y}{b}=1$ then $\frac{b}{a}=$

(A) $\tan\theta$
(B) $-\tan\theta$
(C) $\cot\theta$
(D) $-\cot\theta$

Answer: (C) $\cot\theta$ · The council's preliminary key

Q600 TS EAMCET 2021 · 6 Aug · Shift 2 MCQ

The origin belongs to a region between the lines $x+2y-5=0$ and $3x-4y+5=0$. The number of points in that region of the form $\left((\alpha-1)^2,\alpha\right)$, $\alpha\in\mathbb{Z}$ is

(A) Infinite in number
(B) 3
(C) 4
(D) 2

Answer: (B) 3 · The council's preliminary key

Q601 TS EAMCET 2021 · 6 Aug · Shift 2 MCQ

Let $A(1,1)$ be a point. B is the image of A with respect to the line $x+2y+2=0$. If C is the foot of the perpendicular from B on the line $3x+4y-10=0$, then $AC=$

(A) $\frac{1}{\sqrt{2}}$
(B) 3
(C) $\sqrt{3}$
(D) 1

Answer: (D) 1 · The council's preliminary key

Q602 TS EAMCET 2021 · 6 Aug · Shift 2 MCQ

Image of $A(1,-2)$ with respect to the straight line $L\equiv 2x-3y+5=0$ is B. The foot of the perpendicular from $P(-4,-1)$ on to the line joining AB is

(A) $(1,-2)$
(B) $(-3,4)$
(C) $(-1,1)$
(D) $(-5,7)$

Answer: (C) $(-1,1)$ · The council's preliminary key

Q603 TS EAMCET 2021 · 6 Aug · Shift 2 MCQ

The numbers α and β are such that one of the lines of $2x^2+\alpha xy+3y^2=0$ coincides with one of the lines of $2x^2+\beta xy-3y^2=0$. If the two lines other than that line are perpendicular, then $|\alpha+\beta|=$

(A) 5
(B) 4
(C) 0
(D) 6

Answer: (D) 6 · The council's preliminary key

Q604 TS EAMCET 2021 · 6 Aug · Shift 2 MCQ

If an angular bisector of the coordinate axes is one of the lines of $x^2+2axy+3y^2=0$, then sum of all possible values of a is

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(A) -1
(B) 1
(C) 0
(D) -2

Answer: (C) 0 · The council's preliminary key

Q605 TS EAMCET 2021 · 5 Aug · Shift 1 MCQ

If a point P(x, y) moves such that the sum of the squares of its coordinates is equal to their product, then the locus of P excluding origin is

(A) $\frac{1}{x^2}+\frac{1}{y^2}=1$
(B) $\frac{1}{x}+\frac{1}{y}=1$
(C) $\frac{x}{y}+\frac{y}{x}=1$
(D) $x^2+y^2-xy=1$

Answer: (C) $\frac{x}{y}+\frac{y}{x}=1$ · The council's preliminary key

Q606 TS EAMCET 2021 · 5 Aug · Shift 1 MCQ

When the origin is shifted to $(-1,2)$ by the translation of axes, the transformed equation of $x^2+y^2+2x-4y+1=0$ is

(A) $X^2+Y^2=4$
(B) $X^2+Y^2=16$
(C) $X^2+2X+Y^2=4$
(D) $X^2-2X+Y^2=16$

Answer: (A) $X^2+Y^2=4$ · The council's preliminary key

Q607 TS EAMCET 2021 · 5 Aug · Shift 1 MCQ

If the portion of a straight line intercepted between the coordinate axes is divided by the point (2, 3) in the ratio 2 : 3 then the product of the intercepts made by this line on the axes is

(A) 25
(B) $\frac{29}{6}$
(C) 50
(D) $\frac{31}{3}$

Answer: (A) 25 · The council's preliminary key

Q608 TS EAMCET 2021 · 5 Aug · Shift 1 MCQ

The slope of a line L is 2. If m_1, m_2 are slopes of two lines which are inclined at an angle of $\frac{\pi}{6}$ with L, then $m_1 + m_2 =$

(A) -11
(B) 16
(C) 11
(D) -16

Answer: (D) -16 · The council's preliminary key

Q609 TS EAMCET 2021 · 5 Aug · Shift 1 MCQ

In a Δ ABC, $2x + 3y + 1 = 0$, $x + 2y - 12 = 0$ are the perpendicular bisectors of its sides AB and AC respectively and if A is (3, 2), then the slope of the side BC is

(A) 1
(B) $\frac{1}{3}$
(C) $\frac{5}{3}$
(D) $\frac{5}{2}$

Answer: (C) $\frac{5}{3}$ · The council's preliminary key

Q610 TS EAMCET 2021 · 5 Aug · Shift 1 MCQ

If the equation of a line having a slope $m (m \in \mathbb{Z})$, passing through $(1, 1)$ and making an angle of $\text{Tan}^{-1}\left(\frac{5}{7}\right)$ with the line $x + y - 3 = 0$ is $ax + y + c = 0$, then $ac =$

(A) -7
(B) -42
(C) -21
(D) 12

Answer: (B) -42 · The council's preliminary key

Q611 TS EAMCET 2021 · 5 Aug · Shift 1 MCQ

From the point $(3, -4)$ perpendicular lines L_1 and L_2 are drawn on each of the lines $S \equiv 2x^2 + 3xy - 2y^2 - 7x + y + 3 = 0$. The area of the quadrilateral formed by the pair of lines $S = 0$, L_1 and L_2 is (in square units)

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(A) $\frac{64}{5}$
(B) $\frac{72}{5}$
(C) 25
(D) 35

Answer: (B) $\frac{72}{5}$ · The council's preliminary key

Q612 TS EAMCET 2021 · 5 Aug · Shift 1 MCQ

The line $\frac{x}{3}+\frac{y}{2}=1$ and a pair of lines both passing through origin forms an isosceles triangle. If this pair of lines are perpendicular, then the equation of the pair of straight lines is

(A) $5(x^2-y^2)+24xy=0$
(B) $5(x^2-y^2)-24xy=0$
(C) $5(x^2-y^2)+12xy=0$
(D) $5(x^2-y^2)-12xy=0$

Answer: (B) $5(x^2-y^2)-24xy=0$ · The council's preliminary key

Q613 TS EAMCET 2021 · 5 Aug · Shift 2 MCQ

A (1, 0), B (0, 2) and C (1, 2) are three points on XY-plane. If a point P(x, y) which moves such that the area of triangle PAB is twice the area of the triangle ABC, then the locus of the point P is

(A) $4x^2-4xy+y^2-8x+4y=0$
(B) $4x^2+4xy+y^2-8x-4y-12=0$
(C) $4x^2-4xy+y^2-8x+4y-12=0$
(D) $4x^2+4xy+y^2-8x+4y+12=0$

Answer: (B) $4x^2+4xy+y^2-8x-4y-12=0$ · The council's preliminary key

Q614 TS EAMCET 2021 · 5 Aug · Shift 2 MCQ

The angle by which axes are to be rotated without changing the origin so that the transformed equation of $x^2+4xy-y^2=0$ in new coordinates (X, Y) does not contain XY term is

(A) $\frac{1}{2}\mathrm{Tan}^{-1}(2)$
(B) $\mathrm{Tan}^{-1}(2)$
(C) $\frac{\pi}{8}$
(D) $\frac{\pi}{4}$

Answer: (A) $\frac{1}{2}\mathrm{Tan}^{-1}(2)$ · The council's preliminary key

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Q615 TS EAMCET 2021 · 5 Aug · Shift 2 MCQ

A straight line passing through origin O intersects the lines $10x - 8y - 10 = 0$ and $\frac{x}{4} - \frac{y}{5} + 1 = 0$ at right angles and at the points P and Q respectively. Then the ratio in which O divides the line segment PQ is

(A) 1 : 2
(B) 1 : 4
(C) 1 : 1
(D) 3 : 4

Answer: (B) 1 : 4 · The council's preliminary key

Q616 TS EAMCET 2021 · 5 Aug · Shift 2 MCQ

Consider the lines $L_1 \equiv 4x + 5y - 6 = 0$, $L_2 \equiv 2x + 3y - 4 = 0$, $L_3 \equiv 3x - y + 2 = 0$. If the line $L_1 = 0$ intersects the lines $L_2 = 0$ and $L_3 = 0$ at the points A and B respectively, then the combined equation of OA and OB is

(A) $26x^2 + 17xy + 2y^2 = 0$
(B) $x^2 - 2xy + y^2 = 0$
(C) $3x^2 + 17xy + 2y^2 = 0$
(D) $26x^2 + 2xy + 17y^2 = 0$

Answer: (A) $26x^2 + 17xy + 2y^2 = 0$ · The council's preliminary key

Q617 TS EAMCET 2021 · 5 Aug · Shift 2 MCQ

$x - y = 0$ and $\frac{x}{2} + \frac{y}{2} = 1$ are respectively the perpendicular bisectors of the sides AB and AC of a triangle ABC. If the vertex is A (2, 3), then the equation of the side BC is

(A) $x - 2y + 1 = 0$
(B) $x + 2y - 3 = 0$
(C) $2x + y - 3 = 0$
(D) $x - 2y = -4$

Answer: (A) $x - 2y + 1 = 0$ · The council's preliminary key

Q618 TS EAMCET 2021 · 5 Aug · Shift 2 MCQ

In an isosceles right angled triangle, if the equation of the hypotenuse and its opposite vertex are $3x + 4y = 4$ and (2, 2), then the slopes of the remaining two sides are

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(A) $\frac{1}{7}, -7$
(B) $\frac{-1}{7}, 7$
(C) $\frac{1}{7}, 7$
(D) $\frac{-1}{7}, -7$

Answer: (A) $\frac{1}{7}, -7$ · The council's preliminary key

Q619 TS EAMCET 2021 · 5 Aug · Shift 2 MCQ

The product of the length of perpendiculars from origin to the pair of lines $x^2 + 3y^2 + 4xy - 4x - 10y + 3 = 0$ is

(A) $\frac{3}{\sqrt{20}}$
(B) $\frac{9}{\sqrt{20}}$
(C) $\frac{3}{\sqrt{15}}$
(D) $\frac{3}{\sqrt{5}}$

Answer: (A) $\frac{3}{\sqrt{20}}$ · The council's preliminary key

Q620 TS EAMCET 2021 · 5 Aug · Shift 2 MCQ

If $ax^2 + 2hxy + by^2 + 2gx + 2fy + c = 0$ represents a pair of lines, which of the following statements is true?

(A) If the slope of one line is negative of the slope of another line, then $h = 0$
(B) If the two lines are parallel then $2f(gh + af) = 0$
(C) If the two lines intersect at origin then $g = f = 0$ and $h^2 = ab$
(D) The x- coordinate of the point of intersection of the lines is positive when $hf - bg > 0$

Answer: (A) If the slope of one line is negative of the slope of another line, then $h = 0$ · The council's preliminary key

Q621 TS EAMCET 2021 · 4 Aug · Shift 1 MCQ

A rod of length 6 units slides with its ends on the coordinate axes. The locus of the midpoint of the rod is

(A) $x^2 + y^2 = 9$
(B) $x + y = 3$
(C) $x^2 + y^2 = 36$
(D) $x + y = 6$

Answer: (A) $x^2 + y^2 = 9$ · The council's preliminary key

Q622 TS EAMCET 2021 · 4 Aug · Shift 1 MCQ

The transformed equation of the curve $2x^2 + y^2 - 3x + 5y - 8 = 0$ when the origin is translated to the point $(-1, 2)$ is

(A) $2x^2 + y^2 - 7x + 9y + 11 = 0$
(B) $2x^2 + y^2 + 7x + 9y + 11 = 0$
(C) $2x^2 + y^2 - x + y + 11 = 0$
(D) $2x^2 + y^2 + 7x - 9y + 11 = 0$

Answer: (A) $2x^2 + y^2 - 7x + 9y + 11 = 0$ · The council's preliminary key

Q623 TS EAMCET 2021 · 4 Aug · Shift 1 MCQ

The point on the line $4x - y - 2 = 0$ which is equidistant from the points $(-5, 6)$ and $(3, 2)$ is

(A) $(2,\ 6)$
(B) $(4,\ 14)$
(C) $(1,\ 2)$
(D) $(3,\ 10)$

Answer: (B) $(4,\ 14)$ · The council's preliminary key

Q624 TS EAMCET 2021 · 4 Aug · Shift 1 MCQ

The incentre of the triangle having the vertices $(1, \sqrt{3})$, $(0,\ 0)$ and $(2, 0)$ is

(A) $\left(1, \frac{\sqrt{3}}{2}\right)$
(B) $\left(\frac{2}{3}, \frac{1}{\sqrt{3}}\right)$
(C) $\left(\frac{2}{3}, \frac{\sqrt{3}}{2}\right)$
(D) $\left(1, \frac{1}{\sqrt{3}}\right)$

Answer: (D) $\left(1, \frac{1}{\sqrt{3}}\right)$ · The council's preliminary key

Q625 TS EAMCET 2021 · 4 Aug · Shift 1 MCQ

If $P'(a, b)$ is the image of the point $P(-1, 2)$ with respect to the line $x - 2y + 3 = 0$, then the length of the perpendicular from P' on to the line $2x + y - 7 = 0$ is

(A) $\frac{3}{\sqrt{5}}$
(B) 5
(C) $\frac{7}{\sqrt{5}}$
(D) 7

Answer: (C) $\frac{7}{\sqrt{5}}$ · The council's preliminary key

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Q626 TS EAMCET 2021 · 4 Aug · Shift 1 MCQ

If the vertices of a triangle ABC are $A(1,7)$, $B(-5,-1)$ and $C(7,4)$, then the equation of a bisector of $\angle ABC$ is

(A) $7x-9y+26=0$
(B) $9x-7y+38=0$
(C) $7x+9y+44=0$
(D) $9x+7y+52=0$

Options (1) or (4) were accepted. More than one answer was accepted. · The council's preliminary key

Q627 TS EAMCET 2021 · 4 Aug · Shift 1 MCQ

The combined equation of the two diameters of a circle which divide the circle into 4 sectors is $ax^2+2hxy+by^2=0$. If the area of the bigger sector is 5 times the area of the smaller sector, then $\frac{|a+b|}{\sqrt{(a-b)^2+4h^2}}=$

(A) $\frac{1}{2}$
(B) $\frac{\sqrt{3}}{2}$
(C) $\frac{1}{\sqrt{2}}$
(D) 1

Answer: (B) $\frac{\sqrt{3}}{2}$ · The council's preliminary key

Q628 TS EAMCET 2021 · 4 Aug · Shift 1 MCQ

If $9x^2-24xy+16y^2+\alpha x+\beta y+6$ represents a pair of parallel lines of 1 unit apart and one of those lines passes through $(1,1)$ then $\frac{\alpha}{\beta}=$

(A) $\frac{2}{3}$
(B) 1
(C) $\frac{-3}{2}$
(D) $\frac{-3}{4}$

Answer: (D) $\frac{-3}{4}$ · The council's preliminary key

Q629 TS EAMCET 2021 · 4 Aug · Shift 2 MCQ

The locus of a point P which moves such that the sum of its distances from two perpendicular lines is equal to 1 is a

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(A) Square
(B) Circle
(C) Straight line
(D) set of four parallel lines

Answer: (A) Square · The council's preliminary key

Q630 TS EAMCET 2021 · 4 Aug · Shift 2 MCQ

If $P(a, b)$ is the point to which the origin is to be shifted by translation of axes so as to remove the first degree terms from the equation $4x^2 + 2xy + y^2 - 8x - 4y - 12 = 0$ and θ is the angle through which the axes are to be rotated about the origin so as to remove the xy-term from the above equation, then $a + b + 3\tan 2\theta =$

(A) 2
(B) 4
(C) 8
(D) 6

Answer: (B) 4 · The council's preliminary key

Q631 TS EAMCET 2021 · 4 Aug · Shift 2 MCQ

If the two lines $\frac{3}{2}x + (2a - 1)y = 3$ and $2x + a^2y = -3$ are perpendicular, then the distance of their point of intersection from the point $(1, 1)$ is

(A) $\frac{9}{\sqrt{5}}$
(B) 3
(C) $\frac{\sqrt{45}}{5}$
(D) $\sqrt{\frac{3}{5}}$

Answer: (B) 3 · The council's preliminary key

Q632 TS EAMCET 2021 · 4 Aug · Shift 2 MCQ

A straight line passing through a fixed point $(3, 5)$ intersects the coordinate axes at two points A and B. If the locus of $C(x, y)$ which forms a rectangle with the points A, O(origin) and B is $ax + 2hxy + by = 0$, then $a + b + h =$

(A) $\frac{17}{2}$
(B) 7
(C) $\frac{15}{2}$
(D) 10

Answer: (C) $\frac{15}{2}$ · The council's preliminary key

Q633 TS EAMCET 2021 · 4 Aug · Shift 2 MCQ

For all $\alpha, \beta \in \mathbb{R}$ and $\alpha\beta > 0$, the line $\alpha x + \beta y + \sqrt{\alpha\beta} = 0$ is such that it

(A) possesses a slope independent of α and β
(B) passes through a fixed point
(C) forms a triangle of constant area with coordinate axes
(D) possesses intercepts on the axes that differ by a quantity independent of α, β

Answer: (C) forms a triangle of constant area with coordinate axes · The council's preliminary key

Q634 TS EAMCET 2021 · 4 Aug · Shift 2 MCQ

Let L_1 be a line passing through $(2, 1)$ and $\left(3, \frac{5}{2}\right)$. L_2 is a line perpendicular to L_1 and passing through $(4, -1)$. The area of the triangle formed by $L_1,\ L_2$ and Y-axis is

(A) $\frac{121}{39}$
(B) $\frac{221}{13}$
(C) $\frac{154}{169}$
(D) $\frac{22}{13}$

Answer: (A) $\frac{121}{39}$ · The council's preliminary key

Q635 TS EAMCET 2021 · 4 Aug · Shift 2 MCQ

The equation $3ax^2 - 16xy - (a^2 - 10)y^2 = 0$ represents

(A) two perpendicular lines if $a = -5$
(B) two parallel lines if a satisfies $3a^3 + 30a + 64 = 0$
(C) two parallel lines if a satisfies $3a^3 - 30a - 64 = 0$
(D) two perpendicular lines if $a = -2$

Answer: (D) two perpendicular lines if $a = -2$ · The council's preliminary key

Q636 TS EAMCET 2021 · 4 Aug · Shift 2 MCQ

The angle between the pair of straight lines $3y^2 - 8xy - 3x^2 - 29x + 3y - 18 = 0$ is

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(A) 90°
(B) 35°
(C) 45°
(D) 30°

Answer: (A) 90° · The council's preliminary key

Q637 AP EAMCET 2020 · 7 Oct · Shift 1 MCQ

Which of the following statement is false?
1) The area of a triangle is invariant under the translation of the axes
2) The slope of a straight line is invariant under the translation of the axes
3) The shifting of origin to another point, while changing the direction of the axes, is called translation of axes.
4) If $f(x, y) = 0$ is transformed equation of a curve when the axes are translated to the point (h, k) then the original equation of the curve is $f(x - h, y - k) = 0$

(A) 1
(B) 2
(C) 3
(D) 4

Answer: (C) 3 · The council's preliminary key

Q638 AP EAMCET 2020 · 7 Oct · Shift 1 MCQ

The image of the point $(6, 5)$ in the line $x = 3$ is _____

(A) $(5, 0)$
(B) $(0, 5)$
(C) $(5, 5)$
(D) $(5, 6)$

Answer: (B) $(0, 5)$ · The council's preliminary key

Q639 AP EAMCET 2020 · 7 Oct · Shift 1 MCQ

The equations of lines parallel to the coordinate axes and passing through point $(5, -6)$ are

(A) $x = 5,\ y = -6$
(B) $x = 5,\ y = 6$
(C) $x = -5,\ y = 6$
(D) $x = 0,\ y = 0$

Answer: (A) $x = 5,\ y = -6$ · The council's preliminary key

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Q640 AP EAMCET 2020 · 7 Oct · Shift 1 MCQ

If $p = a_1x + b_1y + k_1 = 0$, $q = a_2x + b_2y + k_2 = 0$ and $\frac{a_1}{a_2} = \frac{b_1}{b_2} = \frac{k_1}{k_2}$, then the curve $p + cq$ is _____

(A) Not a Straight Line
(B) A different Straight Line
(C) Same as the straight line $p = 0$
(D) A Pair of straight lines

Answer: (C) Same as the straight line $p = 0$ · The council's preliminary key

Q641 AP EAMCET 2020 · 7 Oct · Shift 1 MCQ

The equation $4x^2 - 24xy + 11y^2 = 0$ represents

(A) two parallel lines
(B) two perpendicular lines
(C) two lines through the origin
(D) a circle

Answer: (C) two lines through the origin · The council's preliminary key

Q642 AP EAMCET 2020 · 7 Oct · Shift 1 MCQ

The equations $x - y = 4$ and $x^2 + 4xy + y^2 = 0$ represent the sides of a/an _____

(A) Isosceles Triangle
(B) Right Angled Triangle
(C) Equilateral Triangle
(D) Scalene Triangle

Answer: (C) Equilateral Triangle · The council's preliminary key

Q643 AP EAMCET 2020 · 7 Oct · Shift 1 MCQ

The distance between the parallel lines $9x^2 - 6xy + y^2 + 18x - 6y + 8 = 0$ is

(A) $\sqrt{10}$
(B) 2
(C) $\frac{2\sqrt{153}}{\sqrt{10}}$
(D) $\frac{2}{\sqrt{10}}$

Answer: (D) $\frac{2}{\sqrt{10}}$ · The council's preliminary key

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Q644 AP EAMCET 2020 · 7 Oct · Shift 1 MCQ

The square of the differences of the slopes of the lines represented by the equation $x^2(\sec^2\theta - \sin^2\theta) - 2xy\tan\theta + y^2\sin^2\theta = 0$ is

(A) 1
(B) 2
(C) 4
(D) 8

Answer: (C) 4 · The council's preliminary key

Q645 AP EAMCET 2020 · 7 Oct · Shift 1 MCQ

If the equation of the base of an equilateral triangle is $x + y = 6$ and the opposite vertex is the point $(-1, -1)$ then the area of the triangle is equal to _____ sq. units

(A) $\frac{8}{\sqrt{3}}$
(B) $32\sqrt{3}$
(C) $\frac{32}{\sqrt{3}}$
(D) $16\sqrt{3}$

Answer: (C) $\frac{32}{\sqrt{3}}$ · Checked by our team

Q646 AP EAMCET 2020 · 7 Oct · Shift 1 MCQ

The locus of a point which moves such that the area of the triangle formed by it with the vertices $(1, 2)$ and $(-2, 5)$ is 8 sq. units is/are _____

(A) $3x + 3y + 7 = 0$ & $x + y + 3 = 0$
(B) $3x + 3y - 25 = 0$ & $x + y + 3 = 0$
(C) $3x + 3y - 2 = 0$ & $3x + 3y - 25 = 0$
(D) $3x + 3y + 7 = 0$ & $3x + 3y - 25 = 0$

Answer: (D) $3x + 3y + 7 = 0$ & $3x + 3y - 25 = 0$ · The council's preliminary key

Q647 AP EAMCET 2020 · 23 Sep · Shift 1 MCQ

The point to which the origin should be shifted so that the equation $y^2 - 6y - 4x + 13 = 0$ will not contain term in y and the constant term, is _____

(A) $(1,1)$
(B) $(1,2)$
(C) $(2,1)$
(D) $(1,3)$

Answer: (D) $(1,3)$ · The council's preliminary key

Q648 AP EAMCET 2020 · 23 Sep · Shift 1 MCQ

If S_1 and S_2 are two straight lines such that the reflection of S_1 in S_2 and the reflection of S_2 in S_1 coincide, the angle between S_1 and S_2 is equal to

(A) $\frac{\pi}{3}$
(B) $\frac{\pi}{6}$
(C) $\frac{\pi}{4}$
(D) Data Insufficient

Answer: (A) $\frac{\pi}{3}$ · The council's preliminary key

Q649 AP EAMCET 2020 · 23 Sep · Shift 1 MCQ

The equation of the line passing through the point of intersection of lines $2x - y + 2 = 0$ and $x + y + 4 = 0$ and the point $(5, -2)$ is _____

(A) $y + 2 = 0$
(B) $y - 2 = 0$
(C) $4x - 3y - 6 = 0$
(D) $x - y - 7 = 0$

Answer: (A) $y + 2 = 0$ · The council's preliminary key

Q650 AP EAMCET 2020 · 23 Sep · Shift 1 MCQ

The length of the perpendicular from $(1, -2)$ to the line $12x + 5y + 63 = 0$ is _____

(A) 4
(B) 5
(C) 6
(D) $\frac{85}{13}$

Answer: (B) 5 · The council's preliminary key

Q651 AP EAMCET 2020 · 23 Sep · Shift 1 MCQ

If the line $y = mx$ is one of the bisectors of $x^2 + 4xy - y^2 = 0$, then value of $2m =$

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(A) $-1+\sqrt{5}$
(B) $1+\sqrt{5}$
(C) $-1-\sqrt{51}$
(D) $1-\sqrt{51}$

Answer: (A) $-1+\sqrt{5}$ · The council's preliminary key

Q652 AP EAMCET 2020 · 23 Sep · Shift 1 MCQ

Statement-I: Two lines which pass through a given fixed point and are equally inclined to two other lines passing through the same point, are always perpendicular to each other.
Statement-II: Angle bisectors of two intersecting lines are always perpendicular to each other

(A) Both the statements are true and statement-II is the correct explanation of the statement-I
(B) Both the statements are true but statement-II is not the correct explanation of the statement-1
(C) Statement-I is true and statement-II is false
(D) Statement-I is false and statement-II is true

Answer: (A) Both the statements are true and statement-II is the correct explanation of the statement-I · The council's preliminary key

Q653 AP EAMCET 2020 · 23 Sep · Shift 1 MCQ

If $lx^2+3xy-2y^2-5x+5y+k=0$ represents a pair of perpendicular lines, then

(A) $k=\pm 3,\ l=\pm 2$
(B) $k=-22,\ l=-12$
(C) $k=-3,\ l=2$
(D) $k=-16,\ l=9$

Answer: (C) $k=-3,\ l=2$ · The council's preliminary key

Q654 AP EAMCET 2020 · 23 Sep · Shift 1 MCQ

Two point A and B with co-ordinates $(1,1)$ and $(-2,3)$ respectively are given. Then the locus of a point P so that the area of ΔPAB is 9 $sq.units$ is given by _____

(A) $2x+3y+13=0$ & $2x+3y-23=0$
(B) $2x+3y-23=0$ & $2x+3y-13=0$
(C) $2x+3y-13=0$ & $2x-3y+23=0$
(D) $2x-3y+23=0$ & $2x+3y+13=0$

Answer: (A) $2x+3y+13=0$ & $2x+3y-23=0$ · The council's preliminary key

Q655 AP EAMCET 2020 · 22 Sep · Shift 1 MCQ

If the equation $4x^2+hxy+y^2=0$ represent coincident lines, then 'h' is equal to

(A) 1
(B) 2
(C) 3
(D) 4

Answer: (D) 4 · The council's preliminary key

Q656 AP EAMCET 2020 · 22 Sep · Shift 1 MCQ

If the equation $ax^2 + 2hxy + by^2 + 2gx + 2fy + c = 0$ represents two straight lines equidistant from the origin, then $f^4 - g^4 =$

(A) $bf^2 - ag^2$
(B) $ag^2 - bf^2$
(C) $c(bf^2 - ag^2)$
(D) $c(af^2 - bg^2)$

Answer: (C) $c(bf^2 - ag^2)$ · The council's preliminary key

Q657 AP EAMCET 2020 · 22 Sep · Shift 1 MCQ

A point $P(-3, -2)$ is such that the sum of squares of its distances from the co-ordinate axes is equal to the square of its distance from the line $x - y = 1$. Then the equation of the locus of P is

(A) $x^2 + y^2 - 2xy - 2x - 2y - 1 = 0$
(B) $x^2 + y^2 + 2xy + 2x + 2y + 1 = 0$
(C) $x^2 + y^2 + 2xy + 2x - 2y - 1 = 0$
(D) $x^2 + y^2 - 2xy + 2x - 2y + 1 = 0$

Answer: (C) $x^2 + y^2 + 2xy + 2x - 2y - 1 = 0$ · The council's preliminary key

Q658 AP EAMCET 2020 · 22 Sep · Shift 1 MCQ

The number of the values of 'k' for which the lines $2x + y = 1$, $3x + 2y = 2$, $kx + 3y = 3$ are concurrent is _____

(A) 0
(B) Infinite
(C) 1
(D) 2

Answer: (B) Infinite · The council's preliminary key

Q659 AP EAMCET 2020 · 22 Sep · Shift 1 MCQ

The number of possible straight lines passing through the point $(2, 3)$, while forming a triangle with coordinate axes enclosing an area 12 sq.units is

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(A) 1
(B) 2
(C) 3
(D) 4

Answer: (C) 3 · The council's preliminary key

Q660 AP EAMCET 2020 · 22 Sep · Shift 1 MCQ

The acute angle between the lines $x - y = 0$, and $y = 0$ is _____

(A) $\frac{\pi}{6}$
(B) $\frac{\pi}{4}$
(C) $\frac{\pi}{3}$
(D) $\frac{5\pi}{6}$

Answer: (B) $\frac{\pi}{4}$ · The council's preliminary key

Q661 AP EAMCET 2020 · 22 Sep · Shift 1 MCQ

The point of intersection of lines denoted by $3x^2 - 11xy + 10y^2 - 7x + 13y + 4 = 0$ is _____

(A) $(3, 1)$
(B) $(1, 3)$
(C) $(0, 0)$
(D) $(-3, -1)$

Answer: (A) $(3, 1)$ · The council's preliminary key

Q662 AP EAMCET 2020 · 22 Sep · Shift 1 MCQ

If the lines joining the origin to the points of intersection of $y = mx + 1$ and $x^2 + y^2 = 1$ are perpendicular, then _____

(A) $m = -1$ only
(B) $m = 1$ only
(C) $m = \pm 1$
(D) $m = 0$

Answer: (C) $m = \pm 1$ · The council's preliminary key

Q663 AP EAMCET 2020 · 22 Sep · Shift 1 MCQ

The equation of the line through the point $(-1, 3)$ in symmetrical form, when the angle made by the line with the positive direction of x-axis is 120°, is given by

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(A) $\frac{x+1}{-1/2}=\frac{y-3}{\sqrt{3}/2}=r$
(B) $\frac{x+1}{1/2}=\frac{y+3}{\sqrt{3}/2}=r$
(C) $\frac{x+1}{-1/2}=\frac{y+3}{\sqrt{3}/2}=r$
(D) $\frac{x+1}{1/2}=\frac{y-3}{\sqrt{3}/2}=r$

Answer: (A) $\frac{x+1}{-1/2}=\frac{y-3}{\sqrt{3}/2}=r$ · The council's preliminary key

Q664 AP EAMCET 2020 · 22 Sep · Shift 2 MCQ

The radius of any circle touching the lines $3x-4y+5=0,\ 6x-8y-9=0$ is

(A) 1
(B) $\frac{23}{15}$
(C) $\frac{20}{19}$
(D) $\frac{19}{20}$

Answer: (D) $\frac{19}{20}$ · The council's preliminary key

Q665 AP EAMCET 2020 · 22 Sep · Shift 2 MCQ

AB is a line segment moving between the axes such that 'A' lies on x-axis and 'B' lies on y-axis. If P is a point on AB such that $PA=b$ and $PB=a$, then the equation of locus of P is

(A) $\frac{x^2}{b^2}+\frac{y^2}{a^2}=1$
(B) $\frac{x^2}{a^2}+\frac{y^2}{b^2}=1$
(C) $\frac{x^2}{2a^2}+\frac{y^2}{2b^2}=1$
(D) $\frac{x^2}{2b^2}+\frac{y^2}{a^2}=1$

Answer: (B) $\frac{x^2}{a^2}+\frac{y^2}{b^2}=1$ · The council's preliminary key

Q666 AP EAMCET 2020 · 22 Sep · Shift 2 MCQ

The quadrilateral formed by the pairs of line $xy+x+y+1=0,\ xy+3x+3y+9=0$ is _____

(A) Parallelogram
(B) Rhombus
(C) Rectangle
(D) Square

Answer: (D) Square · The council's preliminary key

Q667 AP EAMCET 2020 · 22 Sep · Shift 2 MCQ

If the lines $y=3x+1$ and $2y=x+3$ are equally inclined to the line $y=mx+4$, then the value of 'm' is equal to

(A) $\frac{1\pm3\sqrt{2}}{7}$
(B) $\frac{-1\pm5\sqrt{2}}{7}$
(C) 0
(D) $\frac{1\pm5\sqrt{2}}{7}$

Answer: (D) $\frac{1\pm5\sqrt{2}}{7}$ · The council's preliminary key

Q668 AP EAMCET 2020 · 22 Sep · Shift 2 MCQ

Find the coordinates of M in the original system if the point M changes to $(4,-3)$ when the axes are rotated through an angle of 135°.

(A) $\left(\frac{-1}{2},\frac{7}{2}\right)$
(B) $\left(\frac{1}{2},\frac{7}{2}\right)$
(C) $\left(\frac{-1}{\sqrt{2}},\frac{7}{\sqrt{2}}\right)$
(D) $\left(\frac{1}{\sqrt{2}},\frac{7}{\sqrt{2}}\right)$

Answer: (C) $\left(\frac{-1}{\sqrt{2}},\frac{7}{\sqrt{2}}\right)$ · The council's preliminary key

Q669 AP EAMCET 2020 · 22 Sep · Shift 2 MCQ

If the sum of the distances of a point from two perpendicular lines in a plane is 1, then its locus is

(A) Two intersecting lines
(B) Square
(C) A Straight Line
(D) Circle

Answer: (B) Square · The council's preliminary key

Q670 AP EAMCET 2020 · 22 Sep · Shift 2 MCQ

The incentre of triangle formed by the lines $x+y=1,\ x=1,\ y=1$ is

(A) $\left(1-\frac{1}{\sqrt{2}},1-\frac{1}{\sqrt{2}}\right)$
(B) $\left(1-\frac{1}{\sqrt{2}},\frac{1}{\sqrt{2}}\right)$
(C) $\left(\frac{1}{\sqrt{2}},\frac{1}{\sqrt{2}}\right)$
(D) $\left(\frac{1}{\sqrt{2}}+1,\frac{1}{\sqrt{2}}+1\right)$

Answer: (C) $\left(\frac{1}{\sqrt{2}},\frac{1}{\sqrt{2}}\right)$ · The council's preliminary key

Q671 AP EAMCET 2020 · 21 Sep · Shift 1 MCQ

The point to which the origin should be shifted so that the equation $y^2-6y-4x+13=0$ is transformed to the form $y^2+Ax=0$ is

(A) $(3, 1)$
(B) $(-1, -1)$
(C) $(1, 3)$
(D) $(-1, 3)$

Answer: (C) $(1, 3)$ · The council's preliminary key

Q672 AP EAMCET 2020 · 21 Sep · Shift 1 MCQ

Find the equation of the right bisector of the line segment joining the points $(3, 4)$ and $(-1, 2)$.

(A) $2x + y - 5 = 0$
(B) $2x - y + 5 = 0$
(C) $2x + y + 5 = 0$
(D) $2x - y - 5 = 0$

Answer: (A) $2x + y - 5 = 0$ · The council's preliminary key

Q673 AP EAMCET 2020 · 21 Sep · Shift 1 MCQ

The equation of the line through the intersection of $3x - 4y + 1 = 0$ and $5x + y - 1 = 0$ which cuts off equal intercepts on the axes is given by

(A) $23x + 23y - 11 = 0$
(B) $23x + 23y + 11 = 0$
(C) $23x - 23y - 11 = 0$
(D) $23x - 23y + 11 = 0$

Answer: (A) $23x + 23y - 11 = 0$ · The council's preliminary key

Q674 AP EAMCET 2020 · 21 Sep · Shift 1 MCQ

Find the equation of pair of straight lines that bisect the angles between the lines represented by $ax^2 + 2hxy + by^2 = 0$.

(A) $\frac{x^2+y^2}{a+b} = \frac{xy}{h}$
(B) $\frac{x^2+y^2}{a-b} = \frac{xy}{h}$
(C) $\frac{x^2+y^2}{a-b} = \frac{h}{xy}$
(D) $\frac{x^2-y^2}{a-b} = \frac{xy}{h}$

Answer: (D) $\frac{x^2-y^2}{a-b} = \frac{xy}{h}$ · The council's preliminary key

Q675 AP EAMCET 2020 · 21 Sep · Shift 1 MCQ

Let O denote the origin. If $M(1, 0)$, $N(0, 1)$ and $A(x, y)$ are points such that $xy > 0$ and $x + y < 1$, then choose the correct statement.

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(A) A cannot lie inside ΔOMN
(B) A lies inside ΔOMN
(C) A lies only in the first quadrant
(D) A lies inside ΔOMN or in the third quadrant

Answer: (D) A lies inside ΔOMN or in the third quadrant · The council's preliminary key

Q676 AP EAMCET 2020 · 21 Sep · Shift 1 MCQ

If the lines $3x + y - 2 = 0$, $px + 2y - 3 = 0$ and $2x - y - 3 = 0$ are concurrent, then $p =$

(A) -5
(B) 5
(C) 3
(D) -3

Answer: (B) 5 · The council's preliminary key

Q677 AP EAMCET 2020 · 21 Sep · Shift 1 MCQ

The locus of the point whose ratio of distance from the origin to its distance from $(-2, -3)$ is $5 : 7$, is given by _____

(A) $24(x^2 + y^2) - 100x - 150y - 325 = 0$
(B) $24(x^2 + y^2) + 100x + 150y - 325 = 0$
(C) $24(x^2 + y^2) - 100x + 150y + 325 = 0$
(D) $2x^2 + 2y^2 = 325$

Answer: (A) $24(x^2 + y^2) - 100x - 150y - 325 = 0$ · The council's preliminary key

Q678 AP EAMCET 2020 · 21 Sep · Shift 1 MCQ

If the pair of straight line given by $Ax^2 + 2Hxy + By^2 = 0$, where $(H^2 > AB)$, forms an equilateral triangle with the line $ax + by + c = 0$, then $(A + 3B)(3A + B) =$

(A) $4H^2$
(B) $2H^2$
(C) $-2H^2$
(D) $-4H^2$

Answer: (A) $4H^2$ · The council's preliminary key

Q679 AP EAMCET 2020 · 21 Sep · Shift 1 MCQ

If the equation $x^2 + 2\sqrt{2}xy + 2y^2 + 4x + 4\sqrt{2}y + 1 = 0$ represents a pair of straight lines which are parallel to each other, find the distance between them is

(A) 4 units
(B) 2 units
(C) $2\sqrt{3}$ units
(D) $4\sqrt{3}$ units

Answer: (B) 2 units · The council's preliminary key

Q680 AP EAMCET 2020 · 21 Sep · Shift 2 MCQ

If the pairs of straight lines $x^2 - 2pxy - y^2 = 0$ and $x^2 - 2qxy - y^2 = 0$ bisect the angles between each other, then which of the following is correct

(A) $1 - pq = 0$
(B) $pq - 1 = 0$
(C) $pq + 1 = 0$
(D) $pq = 0$

Answer: (C) $pq + 1 = 0$ · The council's preliminary key

Q681 AP EAMCET 2020 · 21 Sep · Shift 2 MCQ

If one of the lines $2x^2 - xy + by^2 = 0$ passes through the point $(-4, -2)$, then $b^2 =$

(A) -6
(B) 36
(C) 4
(D) 16

Answer: (B) 36 · The council's preliminary key

Q682 AP EAMCET 2020 · 21 Sep · Shift 2 MCQ

The equation of the line through the point $(2, 3)$ such that its x-intercept is twice its y-intercept is _____

(A) $x + 2y - 8 = 0$
(B) $4x + y + 2 = 0$
(C) $2x + 33y - 46 = 0$
(D) $4x + 3y - 11 = 0$

Answer: (A) $x + 2y - 8 = 0$ · The council's preliminary key

Q683 AP EAMCET 2020 · 21 Sep · Shift 2 MCQ

The point of intersection of the pair of lines $x^2 + xy + 2y^2 - 3x + 2y + 4 = 0$ is

(A) $(1, 2)$
(B) $(-1, 2)$
(C) $(-2, 1)$
(D) $(2, -1)$

Answer: (D) $(2, -1)$ · The council's preliminary key

Q684 AP EAMCET 2020 · 21 Sep · Shift 2 MCQ

The distance between the lines $3x + 4y = 9$ and $6x + 8y = 15$ is equal to _____ units

(A) $\frac{1}{10}$
(B) $\frac{3}{10}$
(C) $\frac{5}{10}$
(D) $\frac{7}{10}$

Answer: (B) $\frac{3}{10}$ · The council's preliminary key

Q685 AP EAMCET 2020 · 21 Sep · Shift 2 MCQ

If the length of the intercept made on the line $y = ax$ by the lines $y = 2$ and $y = 6$ is less 5 then

(A) $a \in (-\infty, \infty)$
(B) $a \in \left(\frac{-4}{3}, \frac{4}{3}\right)$
(C) $a \in \left(\frac{-3}{4}, \frac{4}{3}\right)$
(D) $a < \frac{-4}{3}$ or $a > \frac{4}{3}$

Answer: (D) $a < \frac{-4}{3}$ or $a > \frac{4}{3}$ · The council's preliminary key

Q686 AP EAMCET 2020 · 21 Sep · Shift 2 MCQ

If slope of one line of $ax^2 + 4xy + y^2 = 0$ is 3 times the other, then the value of 'a' is

(A) -3
(B) -1
(C) 3
(D) 1

Answer: (C) 3 · The council's preliminary key

Q687 AP EAMCET 2020 · 21 Sep · Shift 2 MCQ

If $3a + 5b + 6c = 0$ then the family of lines $ax + by + c = 0$ pass through the fixed point

(A) $\left(\frac{5}{6}, \frac{1}{2}\right)$
(B) $\left(\frac{1}{2}, \frac{1}{3}\right)$
(C) $\left(\frac{1}{3}, \frac{1}{2}\right)$
(D) $\left(\frac{1}{2}, \frac{5}{6}\right)$

Answer: (D) $\left(\frac{1}{2}, \frac{5}{6}\right)$ · The council's preliminary key

Q688 AP EAMCET 2020 · 18 Sep · Shift 1 MCQ

If a diagonal of a square is along the line $8x - 15y = 0$ and one of its vertices is $(1, 2)$, then the equations of the sides of the square passing through this vertex are

(A) $23x - 7y + 9 = 0,\ 7x + 23y + 53 = 0$
(B) $23x - 7y - 9 = 0,\ 7x + 23y - 53 = 0$
(C) $23x + 7y - 9 = 0,\ 7x + 23y - 53 = 0$
(D) $23x + 7y - 9 = 0,\ 7x + 23y + 53 = 0$

Answer: (B) $23x - 7y - 9 = 0,\ 7x + 23y - 53 = 0$ · The council's preliminary key

Q689 AP EAMCET 2020 · 18 Sep · Shift 1 MCQ

A straight line is drawn through the point $A(1, 2)$ such that its point of intersection with the straight line $x + y = 4$ is at a distance $\sqrt{6}/3$ from the given point 'A'. Find the angle which the line makes with the positive direction of x-axis.

(A) $\theta = 15^\circ$ & 75°
(B) $\theta = 75^\circ$ & 45°
(C) $\theta = 45^\circ$ & 60°
(D) $\theta = 60^\circ$ & 30°

Answer: (A) $\theta = 15^\circ$ & 75° · The council's preliminary key

Q690 AP EAMCET 2020 · 18 Sep · Shift 1 MCQ

The lines $ax^2 + 2hxy + by^2 = 0$ are at right angles if

(A) $a + b = 0$
(B) $a + b = 1$
(C) $h^2 - ab = 0$
(D) $a = b$

Answer: (A) $a + b = 0$ · The council's preliminary key

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Q691 AP EAMCET 2020 · 18 Sep · Shift 1 MCQ

The angle between the straight lines $x^2 + 4xy + y^2 = 0$ is _____

(A) 30°
(B) 45°
(C) 60°
(D) 90°

Answer: (C) 60° · The council's preliminary key

Q692 AP EAMCET 2020 · 18 Sep · Shift 1 MCQ

To which point the origin is to be shifted in order to eliminate first powers of x and y (x^1 and y^1 terms) from the equation $4x^2 + 9y^2 - 8x + 36y + 4 = 0$?

(A) $(1, 2)$
(B) $(-1, 2)$
(C) $(1, -2)$
(D) $(-1, -3)$

Answer: (C) $(1, -2)$ · The council's preliminary key

Q693 AP EAMCET 2020 · 18 Sep · Shift 1 MCQ

The combined equation of the lines passing through the origin and having slopes $\frac{2}{3}$ and $\frac{-2}{3}$ is

(A) $2x^2 - 9y^2 = 0$
(B) $4x^2 - xy - 9y^2 = 0$
(C) $4x^2 - 9y^2 = 0$
(D) $4x^2 + xy - 9y^2 = 0$

Answer: (C) $4x^2 - 9y^2 = 0$ · The council's preliminary key

Q694 AP EAMCET 2020 · 18 Sep · Shift 1 MCQ

A homogenous equation of second degree in x and y represents which of the following?

(A) Two lines
(B) A pair of straight lines through the origin
(C) Only one line through origin
(D) A circle whose centre isn't the origin

Answer: (B) A pair of straight lines through the origin · The council's preliminary key

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Q695 AP EAMCET 2020 · 18 Sep · Shift 1 MCQ

Given that lines $L_1 : y = m_a x$, $L_2 : y = m_b x$ and $L_3 : y = m_c x$ make equal intercepts on the line $x + y = 1$, then

(A) $2(1 + m_a)(1 + m_c) = (1 + m_b)(1 + m_c)$
(B) $2(1 + m_a)(1 + m_c) = (1 + m_b)(2 + m_a + m_c)$
(C) $(1 + m_a)(1 + m_b) = (2 + m_c)(1 + m_a + m_c)$
(D) $(1 + m_a)(1 + m_b) = (1 + m_b)(2 + m_a + m_c)$

Answer: (B) $2(1 + m_a)(1 + m_c) = (1 + m_b)(2 + m_a + m_c)$ · The council's preliminary key

Q696 AP EAMCET 2020 · 18 Sep · Shift 1 MCQ

If $(a, 8)$ is a point on the join of $(2, 5)$ and $(4, -1)$ then

(A) $a = \frac{8}{3}$
(B) $a = \frac{3}{8}$
(C) $a = 1$
(D) $a = -1$

Answer: (C) $a = 1$ · The council's preliminary key

Q697 AP EAMCET 2020 · 18 Sep · Shift 2 MCQ

The sine of the angle between the pair of lines represented by the equation $x^2 - 7xy + 12y^2 = 0$ is

(A) $\frac{1}{12}$
(B) $\frac{1}{13}$
(C) $\frac{1}{\sqrt{170}}$
(D) $\frac{1}{11}$

Answer: (C) $\frac{1}{\sqrt{170}}$ · The council's preliminary key

Q698 AP EAMCET 2020 · 18 Sep · Shift 2 MCQ

The value of 'k' for which the equation $x^2 - 4xy - y^2 + 6x + 2y + k = 0$ represents a pair of straight lines is equal to _____

(A) $\frac{4}{5}$
(B) $\frac{-3}{5}$
(C) $\frac{-4}{5}$
(D) $\frac{3}{5}$

Answer: (C) $\frac{-4}{5}$ · The council's preliminary key

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Q699 AP EAMCET 2020 · 18 Sep · Shift 2 MCQ

The ratio in which the point P, whose abscissa is 3, divides the join of $A(6,5)$ and $B(-1,4)$ is equal to _____

(A) $3:4$
(B) $4:3$
(C) $3:2$
(D) $2:3$

Answer: (A) $3:4$ · The council's preliminary key

Q700 AP EAMCET 2020 · 18 Sep · Shift 2 MCQ

When the origin is shifted to $(2,3)$ the transformed equation $x^2+3xy-2y^2+17x-7y-11=0$ then the original equation of curve is _____

(A) $x^2-2y^2-3xy+4x-y+20=0$
(B) $x^2-2y^2+3xy+4x-y-20=0$
(C) $x^2-2y^2-3xy-4x-y+20=0$
(D) $x^2-2y^2-3xy+4x-y-20=0$

Answer: (B) $x^2-2y^2+3xy+4x-y-20=0$ · The council's preliminary key

Q701 AP EAMCET 2020 · 18 Sep · Shift 2 MCQ

A straight line L_1 passing through $A(3,1)$ meets the coordinate axes at P and Q such that its distance from the origin O is maximum. Then area of ΔOPQ is ___ sq. units

(A) $\frac{100}{3}$
(B) $\frac{25}{3}$
(C) $\frac{50}{3}$
(D) $\frac{200}{3}$

Answer: (C) $\frac{50}{3}$ · The council's preliminary key

Q702 AP EAMCET 2020 · 18 Sep · Shift 2 MCQ

The equations of lines passing through $(5,3)$ and perpendicular to $2x+y-7=0$ is

(A) $2y-x-2=0$
(B) $2y-x+2=0$
(C) $x+y-8=0$
(D) $2y-x-1=0$

Answer: (D) $2y-x-1=0$ · The council's preliminary key

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Q703 AP EAMCET 2020 · 18 Sep · Shift 2 MCQ

If the sum of the slopes of the lines given by $4x^2 + 2\lambda xy - 7y^2 = 0$ is equal to the product of the slopes, then λ is equal to

(A) -4
(B) 4
(C) -2
(D) 2

Answer: (C) -2 · The council's preliminary key

Q704 AP EAMCET 2020 · 18 Sep · Shift 2 MCQ

If $A(2, -3)$ and $B(-2, 1)$ are two vertices of a triangle ABC and if the centroid of ΔABC lies on the line $2x + 3y = 1$, then the locus of vertex C of ΔABC is equal to

(A) $2x + 3y = 5$
(B) $2x + 3y = 9$
(C) $3x + 2y = 5$
(D) $3x + 2y = 9$

Answer: (B) $2x + 3y = 9$ · The council's preliminary key

Q705 AP EAMCET 2020 · 18 Sep · Shift 2 MCQ

The pair of straight lines represented by the equation $3dx^2 + 5xy + (d^2 - 2)y^2 = 0$. If the lines are perpendicular to each other, for how many values of d this condition will be satisfied?

(A) 0
(B) 2
(C) 1
(D) 3

Answer: (B) 2 · The council's preliminary key

Q706 AP EAMCET 2020 · 18 Sep · Shift 2 MCQ

If the slope of the line $ax + (3 - a)y + 7 = 0$ is 7 then the value of integral part of 'a' is

(A) 3
(B) 7
(C) 0.5
(D) 3.5

Answer: (A) 3 · The council's preliminary key

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Q707 AP EAMCET 2020 · 17 Sep · Shift 1 MCQ

Find the value of 'k', if the angle between the straight lines represented by $2x^2 + 5xy + 3y^2 + 6x + 7y + 4 = 0$ is $\text{Tan}^{-1}(k)$

(A) $(1/5)$ only
(B) $(-1/5)$ only
(C) $\pm\frac{1}{5}$
(D) 0

Answer: (A) $(1/5)$ **only** · Checked by our team

Q708 AP EAMCET 2020 · 17 Sep · Shift 1 MCQ

A square is formed by the lines $x = 0,\ y = 0,\ x = 1,\ y = 1$. Then the equations of its diagonals will be

(A) $y = x,\ x + y = 2$
(B) $2y = x,\ x + y = \frac{1}{2}$
(C) $y = x,\ x + y = 1$
(D) $y = 2x,\ x + y = \frac{1}{4}$

Answer: (C) $y = x,\ x + y = 1$ · The council's preliminary key

Q709 AP EAMCET 2020 · 17 Sep · Shift 1 MCQ

If p and q are lengths of the perpendiculars from origin to the lines $x\sec(\theta) + y\,\text{cosec}(\theta) = k$ and $x\cos(\theta) - y\sin(\theta) = k\cos(2\theta)$ respectively, then

(A) $p^2 + 4q^2 = k^2$
(B) $4p^2 + q^2 = k^2$
(C) $p^2 + q^2 = 4k^2$
(D) $p^2 + q^2 = k^2$

Answer: (B) $4p^2 + q^2 = k^2$ · The council's preliminary key

Q710 AP EAMCET 2020 · 17 Sep · Shift 1 MCQ

If pairs of straight lines $x^2 - 2pxy - y^2 = 0$ and $x^2 - 2qxy - y^2 = 0$ be such that each pair bisects the angle between the other pair, then

(A) $pq = 1$
(B) $pq = 2$
(C) $pq = -2$
(D) $pq = -1$

Answer: (D) $pq = -1$ · The council's preliminary key

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Q711 AP EAMCET 2020 · 17 Sep · Shift 1 MCQ

The angle between the lines $2x + 11y - 7 = 0$ and $x + 3y + 5 = 0$ is _____

(A) $\mathrm{Tan}^{-1}\left(\frac{17}{13}\right)$
(B) $\mathrm{Tan}^{-1}\left(\frac{4}{35}\right)$
(C) $\mathrm{Tan}^{-1}\left(\frac{1}{7}\right)$
(D) $\mathrm{Tan}^{-1}(7)$

Answer: (C) $\mathrm{Tan}^{-1}\left(\frac{1}{7}\right)$ · The council's preliminary key

Q712 AP EAMCET 2020 · 17 Sep · Shift 1 MCQ

If the lines $3x + 4y - 5 = 0,\ 2x + 3y - 4 = 0$ and $px + 4y - 6 = 0$ all meet at the same point, then p is equal to

(A) -2
(B) 0
(C) 1
(D) 2

Answer: (D) 2 · The council's preliminary key

Q713 AP EAMCET 2020 · 17 Sep · Shift 1 MCQ

If the pair of straight lines $6x^2 - 5xy + y^2 = 0$ makes angles α and β with the x-axis, then $\tan(\alpha - \beta) =$

(A) 2
(B) $\frac{1}{7}$
(C) 3
(D) 7

Answer: (B) $\frac{1}{7}$ · The council's preliminary key

Q714 AP EAMCET 2020 · 17 Sep · Shift 1 MCQ

Find the transformed equation of $x\cos\theta + y\sin\theta = p$, when the axes are rotated through an angle θ.

(A) $x = p$
(B) $y = p$
(C) $x + y = p$
(D) $x - y = p$

Answer: (A) $x = p$ · The council's preliminary key

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Q715 AP EAMCET 2020 · 17 Sep · Shift 2 MCQ

Locus of the centroid of a triangle whose vertices are $(1,0)$, $(a\cos t, a\sin t)$, $(b\sin t, -b\cos t)$ is $9x^2 + 9y^2 - 6x = k$. Then the value of $k =$

(A) $a^2 + b^2$
(B) $a^2 + b^2 - 1$
(C) $a^2 + b^2 + 1$
(D) 0

Answer: (B) $a^2 + b^2 - 1$ · The council's preliminary key

Q716 AP EAMCET 2020 · 17 Sep · Shift 2 MCQ

The image of the point $P(3,8)$ with respect to the line $x + 3y = 7$, assuming the line to be a plane mirror, is equal to _____

(A) $(1,4)$
(B) $(-1,4)$
(C) $(1,-4)$
(D) $(-1,-4)$

Answer: (D) $(-1,-4)$ · The council's preliminary key

Q717 AP EAMCET 2020 · 17 Sep · Shift 2 MCQ

If the axes are rotated through an angle 45°, then the co-ordinates of the point $(4\sqrt{2}, -6\sqrt{2})$ in the new system are _____

(A) $(-10,-2)$
(B) $(-2,-10)$
(C) $(10,10)$
(D) $(-2,10)$

Answer: (B) $(-2,-10)$ · The council's preliminary key

Q718 AP EAMCET 2020 · 17 Sep · Shift 2 MCQ

The line $x + y = 1$ meets the lines represented by the equation $y^3 - 6xy^2 + 11x^2y - 6x^3 = 0$ at the points P, Q, R. If O is the origin then $(OP)^2 + (OQ)^2 + (OR)^2 =$

(A) $\frac{85}{72}$
(B) $\frac{121}{72}$
(C) $\frac{212}{72}$
(D) $\frac{217}{72}$

Answer: (B) $\frac{121}{72}$ · The council's preliminary key

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Q719 AP EAMCET 2020 · 17 Sep · Shift 2 MCQ

Which of the following pair of straight lines intersect at right angles?

(A) $2x^2 = y(x + 2y)$
(B) $(x + y)^2 = x(y + 3x)$
(C) $2y(x + y) = xy$
(D) $y = \pm 2x$

Answer: (A) $2x^2 = y(x + 2y)$ · The council's preliminary key

Q720 AP EAMCET 2020 · 17 Sep · Shift 2 MCQ

The lines represented by $ax^2 + 2hxy + by^2 = 0$ are perpendicular to each other, if _____

(A) $h^2 = a + b$
(B) $a + b = 0$
(C) $h^2 = ab$
(D) $h = 0$

Answer: (B) $a + b = 0$ · The council's preliminary key

Q721 AP EAMCET 2020 · 17 Sep · Shift 2 MCQ

A light ray emerging from a point source at $A(2, 3)$ is reflected on the y-axis at point 'B' and passes through point $C(5, 10)$, then the co-ordinates of 'B' are

(A) $(5, 0)$
(B) $(0, 5)$
(C) $(0, 2)$
(D) $(2, 0)$

Answer: (B) $(0, 5)$ · The council's preliminary key

Q722 TS EAMCET 2020 · 14 Sep · Shift 1 MCQ

If a variable line is moving such that the intercepts made by it on the coordinate axes are reciprocal to each other, then the points $P(x, y)$ on such lines satisfy

(A) $x + y > 4$
(B) $4xy > 1$
(C) $4xy < 1$
(D) $x + y = 4$

Answer: (C) $4xy < 1$ · Official TGCHE final key

Q723 TS EAMCET 2020 · 14 Sep · Shift 1 MCQ

Suppose the axes X and Y are obtained by rotating the axes x and y by an angle θ. If the equation $x^2 + 2\sqrt{3}\,xy - y^2 = 4a^2$ is transformed to $X^2 - Y^2 = 2a^2$ with respect to the XY-axes, then θ is equal to

(A) 45°
(B) 60°
(C) 90°
(D) 30°

Answer: (D) 30° · Official TGCHE final key

Q724 TS EAMCET 2020 · 14 Sep · Shift 1 MCQ

If the lines drawn along the diagonals of the two squares formed by two pairs of lines $x^2 - 3|x| + 2 = 0$ and $y^2 - 3y + 2 = 0$ form a square ABCD, then the equations of two adjacent sides of the square ABCD are

(A) $x + y = -3,\ x - y = 3$
(B) $x + y = 0,\ x - y = 3$
(C) $x + y = 3,\ x - y = -3$
(D) $x - y = 0,\ x + y = -3$

Answer: (C) $x + y = 3,\ x - y = -3$ · Official TGCHE final key

Q725 TS EAMCET 2020 · 14 Sep · Shift 1 MCQ

If $\frac{\pi}{3}$ is the angle between the straight lines $px + qy + r = 0$ and $x\sin\alpha + y\cos\alpha = r\ (r \neq 0)$ which meet at a point A and the straight line $x\cos\alpha - y\sin\alpha = 0$ also passes through the point A, then

(A) $p^2 + q^2 = 4$
(B) $p^2 + q^2 = 2$
(C) $p^2 + q^2 = r^2$
(D) $p^2 + q^2 = 2r^2$

Answer: (A) $p^2 + q^2 = 4$ · Official TGCHE final key

Q726 TS EAMCET 2020 · 14 Sep · Shift 1 MCQ

The distance between the point $(2, 1)$ and the image of the point $(3, -1)$ with respect to the line $2x + y - 1 = 0$ is

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(A) $\sqrt{\frac{37}{5}}$
(B) $\sqrt{\frac{81}{5}}$
(C) $\sqrt{\frac{89}{5}}$
(D) $\sqrt{\frac{29}{5}}$

Answer: (C) $\sqrt{\frac{89}{5}}$ · Official TGCHE final key

Q727 TS EAMCET 2020 · 14 Sep · Shift 1 MCQ

Let OABC be a parallelogram. The equation of one diagonal AC is $x+y-1=0$ and the combined equation of the sides OA, OC is $2x^2-y^2=0$. If G is centroid of the triangle OAC, then BG =

(A) $2\sqrt{5}$
(B) $\frac{4}{3}\sqrt{5}$
(C) $\frac{2}{3}\sqrt{15}$
(D) $\frac{4}{9}\sqrt{5}$

Answer: (B) $\frac{4}{3}\sqrt{5}$ · Official TGCHE final key

Q728 TS EAMCET 2020 · 14 Sep · Shift 1 MCQ

The acute angle between the pair of straight lines joining the origin to the points of intersection of the line $x+y-1=0$ with the pair of straight lines $kx^2+8xy-3y^2+2x-4y-1=0$ is

(A) $\frac{\pi}{2}$
(B) $\frac{\pi}{4}$
(C) $\text{Cos}^{-1}\left(\frac{1}{\sqrt{10}}\right)$
(D) $\text{Cos}^{-1}\left(\frac{3}{\sqrt{2}}\right)$

Answer: (C) $\text{Cos}^{-1}\left(\frac{1}{\sqrt{10}}\right)$ · Official TGCHE final key

Q729 TS EAMCET 2020 · 14 Sep · Shift 2 MCQ

Let $A=(2,3)$, $B=(3,-5)$ be two vertices of ΔABC such that C is a point on the line $L\equiv 3x+4y-5=0$. Then the locus of the centroid of ΔABC is a line parallel to

(A) $L = 0$
(B) $\overline{AB}$
(C) $\overline{AC}$
(D) $\overline{BC}$

Answer: (A) $L = 0$ · Official TGCHE final key

Q730 TS EAMCET 2020 · 14 Sep · Shift 2 MCQ

If $a\alpha^2 + b\beta^2 + c\alpha\beta + d = 0$ is the transformed equation of $4x^2 + \sqrt{3}xy + 5y^2 - 4 = 0$ obtained by using $\alpha = \frac{\sqrt{3}}{2}x + \frac{y}{2}$ and $\beta = -\frac{x}{2} + \frac{\sqrt{3}}{2}y$, then $c(a + b + d) =$

(A) 0
(B) $13\sqrt{3}$
(C) $5\sqrt{3}$
(D) 6

Answer: (C) $5\sqrt{3}$ · Official TGCHE final key

Q731 TS EAMCET 2020 · 14 Sep · Shift 2 MCQ

If the normal form of the equation of a straight line $4x + 3y + 2 = 0$ is $x\cos\alpha + y\sin\alpha = p$ and its intercept form is $\frac{x}{a} + \frac{y}{b} = 1$, then $\frac{p\sec\alpha}{ab} =$

(A) $\frac{-1}{2}$
(B) $\frac{3}{2}$
(C) $\frac{-3}{2}$
(D) $\frac{1}{2}$

Answer: (C) $\frac{-3}{2}$ · Official TGCHE final key

Q732 TS EAMCET 2020 · 14 Sep · Shift 2 MCQ

For an integer K, if the point $P(K^2, K + 1)$ and the origin $O(0, 0)$ lie in the same region between the lines $x + 2y - 5 = 0$ and $3x - y + 1 = 0$, then the possible number of such points P is

(A) 4
(B) 2
(C) 6
(D) Infinitely many

Answer: (B) 2 · Official TGCHE final key

Q733 TS EAMCET 2020 · 14 Sep · Shift 2 MCQ

The area (in square units) of the quadrilateral formed by the point of intersection of the lines $x + y - 1 = 0$, $x - y + 1 = 0$, the point $(1, 1)$ and the feet of the perpendiculars from this point on to the lines is

(A) $\frac{1}{2}$
(B) $\frac{1}{\sqrt{2}}$
(C) 1
(D) 2

Answer: (A) $\frac{1}{2}$ · Official TGCHE final key

Q734 TS EAMCET 2020 · 14 Sep · Shift 2 MCQ

The condition that the lines joining the origin to the points of intersection of the two curves $x^2 + y^2 + gx + c = 0$, $x^2 + y^2 + 2fy - c = 0$ are at right angles, is

(A) $g^2 - f^2 = 4c$
(B) $g^2 - f^2 = 2c$
(C) $f^2 - 4g^2 = 8c$
(D) $g^2 - 4f^2 = 8c$

Answer: (D) $g^2 - 4f^2 = 8c$ · Official TGCHE final key

Q735 TS EAMCET 2020 · 14 Sep · Shift 2 MCQ

If α represent the square of the distance between the origin and the point of intersection of the lines $x^2 - y^2 - x + 3y - 2 = 0$ and β represent the product of the perpendicular distances from the origin on the pair of lines, then $\alpha\beta =$

(A) $\frac{5}{4}$
(B) 1
(C) $\frac{5}{2}$
(D) 2

Answer: (C) $\frac{5}{2}$ · Official TGCHE final key

Q736 TS EAMCET 2020 · 11 Sep · Shift 1 MCQ

Let C be a curve $ax^2 + 2hxy + by^2 + 2gx + 2fy + c = 0$ in a cartesian plane. By rotating the coordinate axes through an angle $\frac{\pi}{4}$ in the positive direction, if the transformed equation of C is $Y^2 + XY - X = 0$, then $(h^2 - ab) - 2gf =$

(A) 0
(B) 2
(C) 1
(D) -1

Answer: (A) 0 · Official TGCHE final key

Q737 TS EAMCET 2020 · 11 Sep · Shift 1 MCQ

If the straight line passing through the point $P(3,4)$ makes an angle $\frac{\pi}{6}$ with the positive direction of X-axis and meets the line $12x+5y+10=0$ at Q, then the length of PQ is

(A) $\frac{44}{12\sqrt{2}+9}$

(B) $\frac{66}{12\sqrt{3}+5}$

(C) $\frac{132}{12\sqrt{3}+5}$

(D) $\frac{148}{6\sqrt{2}+3}$

Answer: (C) $\frac{132}{12\sqrt{3}+5}$ · Official TGCHE final key

Q738 TS EAMCET 2020 · 11 Sep · Shift 1 MCQ

If the equation of the straight line passing through the point of intersection of $x+2y-19=0$, $x-2y-3=0$ and which is at a perpendicular distance of 5 units from the point $(-2,4)$ is $5x+by+c=0$, then a possible value of $5+b+c$ is

(A) -108

(B) 10

(C) 86

(D) -14

Answer: (D) -14 · Official TGCHE final key

Q739 TS EAMCET 2020 · 11 Sep · Shift 1 MCQ

If two equal sides of an isosceles triangle are given by the equations $7x-y+3=0$ and $x+y-3=0$, then the equation of its third side passing through the point $(2,-5)$ is

(A) $x-3y=17$

(B) $3x-y=11$

(C) $7x+2y=4$

(D) $3x+y=1$

Options (1) or (4) were accepted. More than one answer was accepted. · Official TGCHE final key

Q740 TS EAMCET 2020 · 11 Sep · Shift 1 MCQ

Let P be the point of intersection of the lines $L_1 \equiv x-y-7=0$ and $L_2 \equiv x+y-5=0$. $A(x_1,y_1)$ and $B(x_2,y_2)$ are points on the lines $L_1=0$ and $L_2=0$ respectively such that $PA=3\sqrt{2}$, $PB=\sqrt{2}$, $x_1y_1 \geq 0$, $x_2y_2 \geq 0$, then the angle made by the line segment AB at the origin is

(A) $\frac{\pi}{4}$

(B) $\frac{\pi}{2}$

(C) $\text{Cos}^{-1}\left(\frac{3}{4}\right)$

(D) $\text{Cos}^{-1}\left(\frac{9}{\sqrt{85}}\right)$

Answer: (D) $\text{Cos}^{-1}\left(\frac{9}{\sqrt{85}}\right)$ · Official TGCHE final key

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Q741 TS EAMCET 2020 · 11 Sep · Shift 2 MCQ

A point P moves so that distance from (0, 2) to P is $\frac{1}{\sqrt{2}}$ times the distance of P from (–1, 0). Then the locus of the point is

(A) a circle with centre at (1, 4) and radius $\sqrt{10}$

(B) a parabola with focus at (1, 4) and length of latus rectum 10

(C) an ellipse with centre at (–1, –4) and length of the major axis $\sqrt{10}$

(D) a hyperbola with centre at (–1, –4) and length of the transverse axis 10

Answer: (A) a circle with centre at (1, 4) and radius $\sqrt{10}$ · Official TGCHE final key

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Q742 TS EAMCET 2020 · 11 Sep · Shift 2 MCQ

When the coordinate axes are rotated through an angle θ in anti clock wise direction, if the transformed equation of $x^2+y^2+2xy+2x+6y+1=0$ is $(2+\sqrt{3})X^2+2XY+(2-\sqrt{3})Y^2+aX+bY+2=0$, then $3a-b=$

(A) 10

(B) $2(1+2\sqrt{3})$

(C) 20

(D) $2(3+\sqrt{3})$

Answer: (C) 20 · Official TGCHE final key

Q743 TS EAMCET 2020 · 11 Sep · Shift 2 MCQ

If the lines $3x+y-4=0$, $x-ay-10=0$, $bx+2y+9=0$ form three successive sides of a rectangle in that order and the fourth side passes through $(1,2)$, then the area of that rectangle (in sq. units) is

(A) 8
(B) $\frac{15}{\sqrt{10}}$
(C) $\frac{51}{\sqrt{40}}$
(D) $\frac{51}{4}$

Answer: (D) $\frac{51}{4}$ · Official TGCHE final key

Q744 TS EAMCET 2020 · 11 Sep · Shift 2 MCQ

The points A(2, 1), B(3,–2) and C(a, b) are vertices of the rectangle ABCD. If the point P(3,4) lies on CD produced, then $5a + 10b =$

(A) 41
(B) 10
(C) 45
(D) -15

Answer: (B) 10 · Official TGCHE final key

Q745 TS EAMCET 2020 · 11 Sep · Shift 2 MCQ

If $\begin{vmatrix} a_1 & b_1 & c_1 \\ a_2 & b_2 & c_2 \\ a_3 & b_3 & c_3 \end{vmatrix} = 0$, then the lines $a_ix + b_iy + c_i = 0$ $(i = 1, 2, 3)$ represent

(A) parallel lines if $\frac{a_i}{a_j} \neq \frac{b_i}{b_j} \neq \frac{c_i}{c_j}$ $(i \neq j)$
(B) coincident lines if $\frac{a_i}{a_j} = \frac{b_i}{b_j}$ $(i \neq j)$
(C) concurrent lines but not coincident if $\frac{a_i}{a_j} = \frac{b_i}{b_j} = \frac{c_i}{c_j}$ $(i \neq j)$
(D) concurrent lines if $\frac{a_i}{a_j} \neq \frac{b_i}{b_j} \neq \frac{c_i}{c_j}$ $(i \neq j)$

Answer: (D) concurrent lines if $\frac{a_i}{a_j} \neq \frac{b_i}{b_j} \neq \frac{c_i}{c_j}$ $(i \neq j)$ · Official TGCHE final key

Q746 TS EAMCET 2020 · 11 Sep · Shift 2 MCQ

For integer k, if the area of the triangle formed by the pair of lines $S = 3x^2 - 2kxy + y^2 = 0$ with the line $L = 2x - y - 6 = 0$ is 36 sq. units, then for the angle θ between the lines $S = 0$, $\sin\theta =$

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(A) $\frac{1}{2}$
(B) $\frac{\sqrt{3}}{2}$
(C) $\frac{1}{\sqrt{3}}$
(D) $\frac{1}{\sqrt{5}}$

Answer: (D) $\frac{1}{\sqrt{5}}$ · Official TGCHE final key

Q747 TS EAMCET 2020 · 11 Sep · Shift 2 MCQ

If the sides of a triangle ABC are $2x^2 - y^2 = 0$, $x + y - 1 = 0$ and the sides of another triangle PQR are $2x^2 - 5xy + 2y^2 = 0$, $7x - 2y - 12 = 0$, then the distance between the centroid of ΔABC and the orthocentre of ΔPQR is

(A) $\frac{4}{3}\sqrt{261}$
(B) $\frac{1}{3}\sqrt{165}$
(C) $2\sqrt{29}$
(D) $56\sqrt{3}$

Answer: (C) $2\sqrt{29}$ · Checked by our team

Q748 TS EAMCET 2020 · 10 Sep · Shift 1 MCQ

If M is the foot of the perpendicular drawn from the origin O on to the variable line L, passing through a fixed point (a, b) then the locus of the mid point of OM is

(A) $x^2 + y^2 = a^2 + b^2$
(B) $2x^2 + 2y^2 - ax - by = 0$
(C) $ax + by = 0$
(D) $2x^2 + 2y^2 - ay - bx = 0$

Answer: (B) $2x^2 + 2y^2 - ax - by = 0$ · Official TGCHE final key

Q749 TS EAMCET 2020 · 10 Sep · Shift 1 MCQ

When the origin is shifted to the point $\left(\frac{3}{2}, \frac{3}{2}\right)$ by the translation of coordinate axes, then the transformed equation of $32x^2 + 8xy + 32y^2 - 108x - 108y + 99 = 0$ is

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(A) $72X^2 + 56Y^2 - 63 = 0$
(B) $X^2 - 14XY - 7Y^2 - 2 = 0$
(C) $32X^2 - 16XY + 32Y^2 - 225 = 0$
(D) $32X^2 + 8XY + 32Y^2 - 63 = 0$

Answer: (D) $32X^2 + 8XY + 32Y^2 - 63 = 0$ · Official TGCHE final key

Q750 TS EAMCET 2020 · 10 Sep · Shift 1 MCQ

A line L_1 passing through A (3, 4) and having slope 1 cuts another line L_2 passing through C at B, such that AB = AC. If the equation of line BC is $2x - y + 4 = 0$, then the equation of AC is

(A) $7x - y - 17 = 0$
(B) $x - y + 1 = 0$
(C) $x - 7y + 25 = 0$
(D) $2x + 3y - 18 = 0$

Answer: (A) $7x - y - 17 = 0$ · Official TGCHE final key

Q751 TS EAMCET 2020 · 10 Sep · Shift 1 MCQ

Angles made with the X - axis by the two lines passing through the point P (1, 2) and cutting the line $x + y = 4$ at a distance $\frac{\sqrt{6}}{3}$ units from the point P are

(A) $\frac{\pi}{5}$ and $\frac{3\pi}{10}$
(B) $\frac{\pi}{6}$ and $\frac{\pi}{3}$
(C) $\frac{\pi}{12}$ and $\frac{5\pi}{12}$
(D) $\frac{\pi}{8}$ and $\frac{3\pi}{8}$

Answer: (C) $\frac{\pi}{12}$ and $\frac{5\pi}{12}$ · Official TGCHE final key

Q752 TS EAMCET 2020 · 10 Sep · Shift 1 MCQ

The straight lines $x + 3y - 9 = 0$, $4x + 5y - 1 = 0$, $px + qy + 10 = 0$ are concurrent if the line $5x + 6y + 10 = 0$ passes through the point

(A) $(q, -p)$
(B) (q, p)
(C) $(p, -q)$
(D) (p, q)

Answer: (A) $(q, -p)$ · Official TGCHE final key

Q753 TS EAMCET 2020 · 10 Sep · Shift 1 MCQ

For $l \in \mathbb{R}$, the equation $(2l-3)x^2 + 2lxy - y^2 = 0$ represents a pair of lines

(A) only when $l = 0$
(B) for all values of $l \in \mathbb{R} - (-3, 1)$
(C) for all values of $l \in (-3, 1)$
(D) for all values of $l \in \mathbb{R}$

Answer: (B) for all values of $l \in \mathbb{R} - (-3, 1)$ · Official TGCHE final key

Q754 TS EAMCET 2020 · 10 Sep · Shift 1 MCQ

The centroid of the triangle formed by the lines $x + y = 1$ and $2y^2 - xy - 6x^2 = 0$ is

(A) $(0, 0)$
(B) $\left(\frac{5}{9}, \frac{11}{9}\right)$
(C) $\left(\frac{-5}{9}, \frac{11}{9}\right)$
(D) $\left(\frac{5}{9}, \frac{-11}{9}\right)$

Answer: (C) $\left(\frac{-5}{9}, \frac{11}{9}\right)$ · Official TGCHE final key

Q755 TS EAMCET 2020 · 10 Sep · Shift 2 MCQ

Let $A(2, 1)$ be a point and equation of the straight line L be $x - y = 0$. Let a and b respectively represent the distances from a variable point $P(\alpha, \beta)$ to A and to the line L. If C is distance of the point A from origin such that $a = bc$, then locus of P is

(A) $3x^2 + 3y^2 + 10xy + 8x + 4y + 10 = 0$
(B) $3x^2 + 3y^2 - 10xy + 8x + 4y - 10 = 0$
(C) $3x^2 + 2y^2 - 10xy + 8x + 4y + 10 = 0$
(D) $2x^2 + 3y^2 - 10xy - 8x - 4y - 10 = 0$

Answer: (B) $3x^2 + 3y^2 - 10xy + 8x + 4y - 10 = 0$ · Official TGCHE final key

Q756 TS EAMCET 2020 · 10 Sep · Shift 2 MCQ

The point $(4, 1)$ undergoes the following transformations successively:
(i) Reflection in the line $x - y = 0$
(ii) Shifting through a distance of 2 units along the positive X-axis
(iii) Projection on X-axis
The coordinates of the point in its final position are

(A) $(3,4)$
(B) $(4,3)$
(C) $(3,0)$
(D) $(4,0)$

Answer: (C) $(3,0)$ · Official TGCHE final key

Q757 TS EAMCET 2020 · 10 Sep · Shift 2 MCQ

Two straight lines $3x+4y=5$ and $4x-3y=15$ intersect at the point A. The equations of the lines passing through $(1,2)$ and intersecting the given lines at B and C such that $AB=AC$ are

(A) $x+4y=9,\ 4x-y=2$
(B) $9x-2y=5,\ 2x+9y=20$
(C) $6x-y=4,\ x+6y=13$
(D) $7x+y=9,\ x-7y+13=0$

Answer: (D) $7x+y=9,\ x-7y+13=0$ · Official TGCHE final key

Q758 TS EAMCET 2020 · 10 Sep · Shift 2 MCQ

The equation of a line making an angle 60^0 with the line $x+y-3=0$ and passing through the point $(1,1)$ is

(A) $(1+\sqrt{3})x+(1-\sqrt{3})y-2=0$
(B) $2x+y-3=0$
(C) $\sqrt{3}x+(1-\sqrt{3})y=1$
(D) $\sqrt{3}x+(2+\sqrt{3})y=2(1+\sqrt{3})$

Answer: (A) $(1+\sqrt{3})x+(1-\sqrt{3})y-2=0$ · Official TGCHE final key

Q759 TS EAMCET 2020 · 10 Sep · Shift 2 MCQ

Let P be the pair of lines represented by $2x^2-5xy+2y^2+6x-3y=0$ and consider the following independent statements:
I) α is the x coordinate of the point of intersection of the pair of lines P.
II) β is the slope of one of the lines of P passing through origin.
III) γ is the constant term in the equation of the pair of angular bisectors of P.
then

(A) $\beta<\gamma<\alpha$
(B) $\alpha<\beta=\gamma$
(C) $\alpha=\beta<\gamma$
(D) $\gamma<\alpha<\beta$

Answer: (D) $\gamma<\alpha<\beta$ · Official TGCHE final key

Q760 TS EAMCET 2020 · 10 Sep · Shift 2 MCQ

The combined equation of the diagonals of the parallelogram formed by the lines $(7x^2 - 4xy + 8y^2)^2 + (4x - 8y - 32)(7x^2 - 4xy + 8y^2) = 0$ is

(A) $x^2 - xy + y^2 + 3x - 15y = 0$
(B) $3x^2 - 6xy - 2y^2 - 15x - 17y = 0$
(C) $3x^2 - 5xy - 2y^2 - 24x - 8y = 0$
(D) $x^2 - xy + y^2 + 15x - 12y = 0$

Answer: (C) $3x^2 - 5xy - 2y^2 - 24x - 8y = 0$ · Official TGCHE final key

Q761 TS EAMCET 2020 · 9 Sep · Shift 1 MCQ

Let $A = (0, 4)$ and $B = (2\cos\theta, 2\sin\theta)$, for some $0 < \theta < \frac{\pi}{2}$. Let P divide the line segment AB in the ratio 2 : 3 internally. The locus of P is

(A) Circle
(B) Ellipse
(C) Parabola
(D) Hyperbola

Answer: (A) Circle · Official TGCHE final key

Q762 TS EAMCET 2020 · 9 Sep · Shift 1 MCQ

The transformed equation of $3x^2 - 4xy = r^2$, when the coordinate axes are rotated through an angle $\mathrm{Tan}^{-1}(2)$ is

(A) $\mathrm{X}^2 - 4\mathrm{Y}^2 = r^2$
(B) $2\mathrm{XY} + r^2 = 0$
(C) $4\mathrm{Y}^2 - \mathrm{X}^2 = r^2$
(D) $\mathrm{XY} = r^2$

Answer: (C) $4\mathrm{Y}^2 - \mathrm{X}^2 = r^2$ · Official TGCHE final key

Q763 TS EAMCET 2020 · 9 Sep · Shift 1 MCQ

If $x\cos\theta + y\sin\theta = p$ is the normal form and $y = mx + c$ is the slope - intercept form of the line $x + 2y + 1 = 0$, then $\mathrm{Tan}^{-1}(\tan\theta + m + c) =$

(A) 0
(B) $\pi/2$
(C) π
(D) $\pi/4$

Answer: (D) $\pi/4$ · Official TGCHE final key

Q764 TS EAMCET 2020 · 9 Sep · Shift 1 MCQ

If the family of straight lines $ax + by + c = 0$, where $2a + 3b = 4c$ is concurrent at the point $P(l, m)$, then the foot of the perpendicular drawn from P to the line $x + y + 1 = 0$ is

(A) $\left(\frac{-3}{8}, \frac{-5}{8}\right)$
(B) $\left(\frac{-2}{5}, \frac{-3}{5}\right)$
(C) $(3, -4)$
(D) $(-5, 4)$

Answer: (A) $\left(\frac{-3}{8}, \frac{-5}{8}\right)$ · Official TGCHE final key

Q765 TS EAMCET 2020 · 9 Sep · Shift 1 MCQ

$O(0,0)$, $A(-3,-1)$ and $B(-1,-3)$ are the vertices of a Δ OAB. P is a point on the perpendicular AD drawn from A on OB such that $\frac{AP}{PD} = \frac{3}{4}$. Then the equation of the line L parallel to OB and passing through P, is

(A) $3x - y + 3 = 0$
(B) $21x - 7y + 32 = 0$
(C) $15x - 5y + 32 = 0$
(D) $3x - y + 35 = 0$

Answer: (B) $21x - 7y + 32 = 0$ · Official TGCHE final key

Q766 TS EAMCET 2020 · 9 Sep · Shift 1 MCQ

A straight line passing through the point $(1, 0)$ and not parallel to X-axis intersects the curve $2x^2 + 5y^2 - 7x = 0$ at two points A and B. The angle subtended by the line segment AB at the origin is

(A) 30^0
(B) 45^0
(C) 60^0
(D) 90^0

Answer: (D) 90^0 · Official TGCHE final key

Q767 TS EAMCET 2020 · 9 Sep · Shift 1 MCQ

If (p, q) is the centroid of the triangle formed by the lines $8x^2 - 14xy + 5y^2 = 0$, $x - 2y + 3 = 0$, then

(A) $p + q = -1$
(B) $q = 2p$
(C) $p = 2q$
(D) $p = q$

Answer: (D) $p = q$ · Official TGCHE final key

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Q768 TS EAMCET 2020 · 9 Sep · Shift 2 MCQ

For a real variable $a > 1$, consider the points $A_k = (ka, a^k)$, $k = 1, 2, \ldots, n$ in the Cartesian plane. If α and β represent respectively the arithmetic mean of x-coordinates and the geometric mean of y coordinates of A_k, then the locus of the point $P(\alpha, \beta)$ is

(A) $ny = \left(\frac{2x}{n}\right)^{n^2+1}$

(B) $y^2 = \left(\frac{2x}{n+1}\right)^{n+1}$

(C) $y = \left(\frac{x^2}{n+1}\right)^{n}$

(D) $y = (n+1)(x-(n+1))$

Answer: (B) $y^2 = \left(\frac{2x}{n+1}\right)^{n+1}$ · Official TGCHE final key

Q769 TS EAMCET 2020 · 9 Sep · Shift 2 MCQ

By shifting the origin to the point $(2, 3)$ and then rotating the coordinate axes through an angle θ in the counter clockwise direction, if the equation $3x^2 + 2xy + 3y^2 - 18x - 22y + 50 = 0$ is transformed to $4X^2 + 2Y^2 - 1 = 0$, then the angle $\theta =$

(A) $\frac{\pi}{6}$

(B) $\frac{\pi}{2}$

(C) $\frac{\pi}{4}$

(D) $\frac{\pi}{3}$

Answer: (C) $\frac{\pi}{4}$ · Official TGCHE final key

Q770 TS EAMCET 2020 · 9 Sep · Shift 2 MCQ

A straight line $L \equiv 0$ passing through the point $A = (-5, -4)$ and having slope $\tan\theta$ meets the lines $x + 3y + 2 = 0$ and $2x + y + 4 = 0$ respectively at the points B and C. If $\frac{100}{AC^2} - \frac{225}{AB^2} = 4\cos 2\theta + \sin 2\theta$, then the slope of the line $L \equiv 0$ is

(A) $\frac{2}{3}$

(B) $\frac{-2}{3}$

(C) $\frac{-1}{2}$

(D) $\frac{1}{2}$

Answer: (C) $\frac{-1}{2}$ · Official TGCHE final key

Q771 TS EAMCET 2020 · 9 Sep · Shift 2 MCQ

The equations of the sides AB, AC and BC of a $\triangle ABC$ are respectively $x-3y=0$, $3x-y=0$, $x+y+4=0$. If P and Q are the points on the line $3x-y+k=0$ passing through B such that $PB : BQ = 1:1$ then $k=$

(A) 8
(B) 12
(C) -8
(D) -12

Answer: (A) 8 · Official TGCHE final key

Q772 TS EAMCET 2020 · 9 Sep · Shift 2 MCQ

Let A $(1,1)$, B $(1,-1)$, C $(-1,1)$ be the vertices of $\triangle ABC$. Let S be the circum-centre, O be the orthocentre and I be the incentre of the $\triangle ABC$. Then $IS+OS=$

(A) 4
(B) 2
(C) $2+2\sqrt{2}$
(D) $2+\sqrt{2}$

Answer: (B) 2 · Official TGCHE final key

Q773 TS EAMCET 2020 · 9 Sep · Shift 2 MCQ

If one of the pair of lines $4x^2+6xy+ky^2=0$ is perpendicular to one of the lines represented by $3x^2-5xy+2y^2=0$, then twice the absolute difference of such possible values of k is

(A) 4
(B) 8
(C) 90
(D) 12

Answer: (A) 4 · Official TGCHE final key

Q774 TS EAMCET 2020 · 9 Sep · Shift 2 MCQ

The difference of the tangents of the angles which the lines $(\tan^2\alpha+\cos^2\alpha)x^2-2xy\tan\alpha+(\sin^2\alpha)y^2=0$ make with the X - axis is

(A) $\frac{1}{2}$
(B) 1
(C) 2
(D) $\frac{\sqrt{3}-1}{2}$

Answer: (C) 2 · Official TGCHE final key

Q775 TS EAMCET 2019 · 6 May · Shift 1 MCQ

The ends of a rod of length l moves on two mutually perpendicular lines. The locus of the point on the rod which divides it in the ratio 1:2 is

(A) $3x^2+4y^2=2l^2$
(B) $9x^2+16y^2=5l^2$
(C) $4x^2+3y^2=6l^2$
(D) $9x^2+36y^2=4l^2$

Answer: (D) $9x^2+36y^2=4l^2$ · Official TGCHE final key

Q776 TS EAMCET 2019 · 6 May · Shift 1 MCQ

The point P (1, 4) occupies the positions A, B and C respectively after undergoing the following three transformations successively.
a) Reflection about the line $y=x$
b) Translation through a distance of 1 unit along the positive direction of X-axis
c) Rotation of the line OB through an angle $\frac{\pi}{4}$ about the origin in the anti-clockwise direction
Then the coordinates of C are

(A) $(\sqrt{2}, 2\sqrt{2})$
(B) $(2\sqrt{2}, 3\sqrt{2})$
(C) $\left(\frac{5}{\sqrt{2}}, \frac{7}{\sqrt{2}}\right)$
(D) $\left(\frac{2}{\sqrt{2}}, \frac{3}{\sqrt{2}}\right)$

Answer: (B) $(2\sqrt{2}, 3\sqrt{2})$ · Official TGCHE final key

Q777 TS EAMCET 2019 · 6 May · Shift 1 MCQ

If the normal drawn from the origin to the straight line $2x+7y+6=0$ makes an angle θ with the positive X-axis, then $\theta =$

(A) $\mathrm{Tan}^{-1}\frac{7}{2}$

(B) $\pi - \mathrm{Tan}^{-1}\frac{7}{2}$

(C) $\pi + \mathrm{Tan}^{-1}\frac{7}{2}$

(D) $-\mathrm{Tan}^{-1}\frac{7}{2}$

Answer: (C) $\pi + \mathrm{Tan}^{-1}\frac{7}{2}$ · Official TGCHE final key

Q778 TS EAMCET 2019 · 6 May · Shift 1 MCQ

(x_1, y_1) is the point of concurrence of a family of lines. If the algebraic sum of the lengths of the perpendiculars drawn to these lines from (2, 0), (0, 2) and (1, 1) is zero, then $(x_1, y_1) =$

(A) $(1, 1)$

(B) $(0, 2)$

(C) $(-1, 1)$

(D) $(1, 2)$

Answer: (A) $(1, 1)$ · Official TGCHE final key

Q779 TS EAMCET 2019 · 6 May · Shift 1 MCQ

If the line $3x + 4y + \lambda = 0$ divides the distance between the lines $3x + 4y + 5 = 0$ and $3x + 4y - 5 = 0$ in the ratio of 3:7, then a value of λ is

(A) -2

(B) 2

(C) 0

(D) 5

Answer: (B) 2 · Official TGCHE final key

Q780 TS EAMCET 2019 · 6 May · Shift 1 MCQ

Assertion (A): The lines $2x^2 + 5xy + 2y^2 = 0$ and $x - 2y + 1 = 0$ form a right angled triangle.
Reason (R): The equation $ax^2 + 2hxy + by^2 = 0$ represents a pair of perpendicular lines if $a + b = 0$
Then, choose the correct answer

(A) (A) is false, (R) is true

(B) (A) is true, (R) is false

(C) (A) is true, (R) is true, but R is not the correct explanation to (A)

(D) (A) is true, (R) is true and (R) is the correct explanation to (A)

Answer: (C) (A) is true, (R) is true, but R is not the correct explanation to (A) · Official TGCHE final key

Q781 TS EAMCET 2019 · 6 May · Shift 1 MCQ

The combined equation of the diagonals of the square formed by the pairs of lines $xy + 6y - 4x - 24 = 0$ and $xy + 6x - 4y - 24 = 0$ is

(A) $x^2 - y^2 + 2x - 2y = 0$
(B) $x^2 - y^2 + 2x + 2y = 0$
(C) $x^2 - y^2 + x + y = 0$
(D) $x^2 + y^2 - 2xy + x - y = 0$

Answer: (A) $x^2 - y^2 + 2x - 2y = 0$ · Official TGCHE final key

Q782 TS EAMCET 2019 · 4 May · Shift 1 MCQ

If the origin is shifted to a point (h, k) by translation of axes in order to make the equation $x^2 + 5xy + 2y^2 + 5x + 6y + 7 = 0$ free from first order terms, then

(A) $h = -\frac{10}{17},\ k = \frac{13}{17}$
(B) $h = -\frac{10}{17},\ k = -\frac{13}{17}$
(C) $h = \frac{10}{17},\ k = \frac{13}{17}$
(D) $h = \frac{10}{17},\ k = -\frac{13}{17}$

Answer: (B) $h = -\frac{10}{17},\ k = -\frac{13}{17}$ · Official TGCHE final key

Q783 TS EAMCET 2019 · 4 May · Shift 1 MCQ

Suppose a line makes an angle of 120° with the positive direction of X-axis. If the length of the perpendicular from origin to that line is 4, then the equation of the line is

(A) $-\sqrt{3}x + y = 8$
(B) $\sqrt{3}x + y = 8$
(C) $\sqrt{3}x - y = 8$
(D) $\sqrt{3}x + y = -8$

Options (2) or (4) were accepted. More than one answer was accepted. · Official TGCHE final key

Q784 TS EAMCET 2019 · 4 May · Shift 1 MCQ

Two straight lines are drawn through the point $(0, 2)$ such that the length of the perpendiculars from the point $(4, 4)$ to these lines are each equal to 2 units. The equation of the line joining the feet of these perpendiculars is

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(A) $y + x = 5$
(B) $2y + 3x = 8$
(C) $y - 2x = 10$
(D) $y + 2x = 10$

Answer: (D) $y + 2x = 10$ · Official TGCHE final key

Q785 TS EAMCET 2019 · 4 May · Shift 1 MCQ

Two points A$(-a, 0)$ and B$(a, 0)$ are given. If C is a variable point lying on one side of the line AB such that $\angle CAB - \angle CBA = \alpha$, where α is a positive constant, then, locus of the point C is

(A) $a^2 + x^2 + y^2 + 2xy \cot \alpha = 0$
(B) $a^2 - x^2 + y^2 + 2xy \cot \alpha = 0$
(C) $a^2 - x^2 - y^2 + 2xy \tan \alpha = 0$
(D) $a^2 - x^2 + y^2 + 2xy \tan \alpha = 0$

Answer: (B) $a^2 - x^2 + y^2 + 2xy \cot \alpha = 0$ · Official TGCHE final key

Q786 TS EAMCET 2019 · 4 May · Shift 1 MCQ

If the angle between the pair of lines $x^2 + 2\sqrt{2}xy + ky^2 = 0$, $k > 0$ is 45°, then the area (in square units) of the triangle formed by the pair of bisectors of angles between the given lines and the line $x + 2y + 1 = 0$ is

(A) $\frac{1}{3}$
(B) 1
(C) $\frac{2}{3}$
(D) 2

Answer: (A) $\frac{1}{3}$ · Official TGCHE final key

Q787 TS EAMCET 2019 · 4 May · Shift 1 MCQ

If d is the distance between the point of intersection of the lines $x^2 + 4xy + ky^2 - 4x - 10y + 3 = 0$ and the origin and p is the product of the perpendicular distances from the origin to these lines, then $d^2 - 20p^2 =$

(A) 8
(B) 4
(C) 2
(D) 0

Answer: (A) 8 · Official TGCHE final key

Q788 TS EAMCET 2019 · 4 May · Shift 2 MCQ

Match the locus of the points in List - I with the curves in List - II. (Here p, q and r are constants and t, θ and λ are parameters)

List - I

A) $\left[\frac{p}{2}\left(t+\frac{1}{t}\right), \frac{q}{2}\left(t-\frac{1}{t}\right)\right]$

B) $(p+q\cos\theta,\ r+q\sin\theta)$

C) $(p+\lambda^2,\ q-\lambda)$

List - II

I) parabola

II) circle

III) ellipse

IV) hyperbola

The correct match is

(A) A-IV, B-I, C-II

(B) A-III, B-II, C-I

(C) A-IV, B-II, C-I

(D) A-II, B-III, C-IV

Answer: (C) A-IV, B-II, C-I · Official TGCHE final key

Q789 TS EAMCET 2019 · 4 May · Shift 2 MCQ

When the origin is shifted to $(1,-2)$ by translation of coordinate axes, the transformed coordinates of $(3,-2)$ are (α,β). If the axes are rotated about origin through an angle of 45° after the translation, then the transformed coordinates of (α,β) are

(A) $(\sqrt{2},0)$

(B) $(0,\sqrt{2})$

(C) $(-\sqrt{2},\sqrt{2})$

(D) $(\sqrt{2},-\sqrt{2})$

Answer: (D) $(\sqrt{2},-\sqrt{2})$ · Official TGCHE final key

Q790 TS EAMCET 2019 · 4 May · Shift 2 MCQ

If a straight line is passing through the point of intersection of the lines $3x-4y+1=0$, $5x+y-1=0$ and making equal non-zero intercepts on the coordinate axes, then the area (in sq. units) of the triangle formed by this line with the coordinate axes, is

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(A) $\frac{121}{1058}$
(B) $\frac{121}{529}$
(C) $\frac{529}{121}$
(D) $\frac{1058}{121}$

Answer: (A) $\frac{121}{1058}$ · Official TGCHE final key

Q791 TS EAMCET 2019 · 4 May · Shift 2 MCQ

If the equations of the perpendicular bisectors of the sides AB and AC of a $\triangle ABC$ are $x - y + 5 = 0$ and $x + 2y = 0$ respectively and if A is $(1, -2)$, then the equation of the perpendicular bisector of the side BC is

(A) $3x + 3y + 5 = 0$
(B) $9x - 23y + 40 = 0$
(C) $6x + 15y = 5$
(D) $23x - 14y + 100 = 0$

Answer: (D) $23x - 14y + 100 = 0$ · Official TGCHE final key

Q792 TS EAMCET 2019 · 4 May · Shift 2 MCQ

If the lines $x + 3y - 5 = 0$, $5x + 2y - 12 = 0$ and $3x - ky - 1 = 0$ do not form a triangle, then a value of k is

(A) $\frac{1}{5}$
(B) $\frac{-1}{5}$
(C) $\frac{-6}{5}$
(D) $\frac{6}{5}$

Answer: (C) $\frac{-6}{5}$ · Official TGCHE final key

Q793 TS EAMCET 2019 · 4 May · Shift 2 MCQ

If the combined equation of the diagonals of the square formed by the pairs of lines $xy + 4x - 5y - 20 = 0$ and $xy - 5x + 4y - 20 = 0$ is $x^2 - y^2 - kx + ly = 0$, then $k + l =$

(A) 0
(B) 2
(C) -1
(D) 1

Answer: (B) 2 · Official TGCHE final key

Q794 TS EAMCET 2019 · 4 May · Shift 2 MCQ

The equation of the pair of bisectors of the angles between the pair of straight lines $3x^2 + 7xy + 2y^2 + 5x + 5y + 2 = 0$ is

(A) $7(3x+5)^2 - 2(3x+5)(y+5) - 7(y+5)^2 = 0$
(B) $7(3x-5)^2 - 2(3x-5)(y-5) - 7(y-5)^2 = 0$
(C) $7(5x+3)^2 - 2(5x+3)(5y+1) - 7(5y+1)^2 = 0$
(D) $7(5x-3)^2 - 2(5x-3)(5y-1) - 7(5y-1)^2 = 0$

Answer: (C) $7(5x+3)^2 - 2(5x+3)(5y+1) - 7(5y+1)^2 = 0$ · Official TGCHE final key

Q795 TS EAMCET 2019 · 3 May · Shift 1 MCQ

The set of all points that forms a triangle of area 15 sq. units with the points $(1, -2)$ and $(-5, 3)$ lies on

(A) $5x + 6y + 23 = 0$
(B) $(5x + 6y - 23)(5x + 6y + 37) = 0$
(C) $25x^2 + 36y^2 + 24x - 30y - 227 = 0$
(D) $5x + 6y - 37 = 0$

Answer: (B) $(5x + 6y - 23)(5x + 6y + 37) = 0$ · Official TGCHE final key

Q796 TS EAMCET 2019 · 3 May · Shift 1 MCQ

Suppose the new axes X, Y are generated by rotating the coordinate axes x, y about the origin through an angle of 30° in the anticlockwise direction. Then the transformed equation of $x^2 + 2\sqrt{3}xy - y^2 = 2a^2$ with respect to new axes X, Y is

(A) $X^2 - Y^2 = a^2$
(B) $X^2 + Y^2 = 2a^2$
(C) $X^2 + 2\sqrt{3}XY - Y^2 = 2a^2$
(D) $X^2 - Y^2 = 2a^2$

Answer: (A) $X^2 - Y^2 = a^2$ · Official TGCHE final key

Q797 TS EAMCET 2019 · 3 May · Shift 1 MCQ

A line L makes intercepts a and b on the coordinate axes. The axes are rotated through an angle θ in the positive direction, keeping the origin fixed. If the line L makes intercepts p and q on the new coordinate axes, then $\frac{1}{a^2} + \frac{1}{b^2} =$

(A) $\frac{1}{p^2q^2}$
(B) $\frac{1}{p^2}-\frac{1}{q^2}$
(C) $\frac{1}{p^2}+\frac{1}{q^2}$
(D) $\frac{pq}{p^2+q^2}$

Answer: (C) $\frac{1}{p^2}+\frac{1}{q^2}$ · Official TGCHE final key

Q798 TS EAMCET 2019 · 3 May · Shift 1 MCQ

If m_1, m_2 $(m_1 > m_2)$ are the slopes of the lines which make an angle of 30° with the line joining the points $(1,2)$ and $(3,4)$, then $\frac{m_1}{m_2} =$

(A) $2+\sqrt{3}$
(B) $2-\sqrt{3}$
(C) $7+4\sqrt{3}$
(D) $7-4\sqrt{3}$

Answer: (C) $7+4\sqrt{3}$ · Official TGCHE final key

Q799 TS EAMCET 2019 · 3 May · Shift 1 MCQ

If A$(-2,1)$, B$(0,-2)$, C$(1,2)$ are the vertices of a triangle ABC, then the perpendicular distance from its circumcentre to the side BC is

(A) $\frac{7\sqrt{13}}{22}$
(B) $\frac{3\sqrt{17}}{22}$
(C) $\frac{5\sqrt{10}}{11}$
(D) $\frac{\sqrt{2026}}{22}$

Answer: (B) $\frac{3\sqrt{17}}{22}$ · Official TGCHE final key

Q800 TS EAMCET 2019 · 3 May · Shift 1 MCQ

If one of the lines $ax^2+2hxy+by^2=0$ bisects the angle between the positive coordinate axes, then

(A) $a+b=2h$
(B) $a-b=2|h|$
(C) $(a+b)^2=4h^2$
(D) $(a-b)^2=4h^2$

Answer: (C) $(a+b)^2=4h^2$ · Official TGCHE final key

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Q801 TS EAMCET 2019 · 3 May · Shift 1 MCQ

The equation of the pair of perpendicular lines passing through origin and forming an isosceles triangle with the line $2x + 3y = 6$ is

(A) $5x^2 - 24xy - 5y^2 = 0$
(B) $4x^2 - 12xy - 4y^2 = 0$
(C) $6x^2 - 5xy - 6y^2 = 0$
(D) $9x^2 + 5xy - 9y^2 = 0$

Answer: (A) $5x^2 - 24xy - 5y^2 = 0$ · Official TGCHE final key

Q802 TS EAMCET 2019 · 3 May · Shift 2 MCQ

The locus of all points that are at a distance of atleast 2 units from $(-3, 0)$ is

(A) $\{(x, y) \mid x^2 + y^2 + 6x + 7 > 0\}$
(B) $\{(x, y) \mid x^2 + y^2 + 6x + 5 \geq 0\}$
(C) $\{(x, y) \mid x^2 + y^2 - 6x + 5 > 0\}$
(D) $\{(x, y) \mid x^2 + y^2 - 6x + 5 \leq 0\}$

Answer: (B) $\{(x, y) \mid x^2 + y^2 + 6x + 5 \geq 0\}$ · Official TGCHE final key

Q803 TS EAMCET 2019 · 3 May · Shift 2 MCQ

If $\theta_1, \theta_2, \theta_3$ are respectively the angles by which the coordinate axes are to be rotated to eliminate the xy term from the following equations, then the descending order of these angles is

$A_1 = 3x^2 + 5xy + 3y^2 + 2x + 3y + 4 = 0$,
$A_2 = 5x^2 + 2\sqrt{3}xy + 3y^2 + 6 = 0$,
$A_3 = 4x^2 + \sqrt{3}xy + 5y^2 - 4 = 0$

(A) $\theta_1, \theta_2, \theta_3$
(B) $\theta_3, \theta_1, \theta_2$
(C) $\theta_2, \theta_1, \theta_3$
(D) $\theta_3, \theta_2, \theta_1$

Answer: (B) $\theta_3, \theta_1, \theta_2$ · Official TGCHE final key

Q804 TS EAMCET 2019 · 3 May · Shift 2 MCQ

If $x\cos\alpha + y\sin\alpha = p$ is the normal form of the equation of a straight line $x + \sqrt{3}y + 4 = 0$ and a, b are respectively X, Y - intercepts of this line, then $\sqrt{3}\pi bp - 3a\alpha =$

(A) 0
(B) 1
(C) $\frac{\pi}{2}$
(D) 8π

Answer: (D) 8π · Official TGCHE final key

Q805 TS EAMCET 2019 · 3 May · Shift 2 MCQ

The distance between the circumcentre and the centroid of the triangle formed by the vertices $(1, 2)$, $(3, -1)$ and $(4, 0)$, is

(A) $\frac{1}{\sqrt{2}}\sqrt{45}$
(B) 4
(C) $\frac{7\sqrt{2}}{15}$
(D) $\frac{9\sqrt{2}}{5}$

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Q806 TS EAMCET 2019 · 3 May · Shift 2 MCQ

If a straight line passes through the point $(-5, 4)$ and makes an intercept of length $\frac{2}{\sqrt{5}}$ between the lines $x + 2y + 1 = 0$ and $x + 2y - 1 = 0$, then the equation of that line is

(A) $5x + 6y + 1 = 0$
(B) $2x + 3y - 2 = 0$
(C) $3x + 4y - 1 = 0$
(D) $2x - y + 14 = 0$

Answer: (D) $2x - y + 14 = 0$ · Official TGCHE final key

Q807 TS EAMCET 2019 · 3 May · Shift 2 MCQ

If θ is the angle between the lines joining the origin to the points of intersection of the curve $2x^2 + 3y^2 = 6$ and the line $x + y = 1$, then $\sin\theta =$

(A) 1
(B) $\sqrt{\frac{7}{145}}$
(C) $\sqrt{\frac{96}{145}}$
(D) $\frac{1}{2}$

Answer: (C) $\sqrt{\frac{96}{145}}$ · Official TGCHE final key

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Q808 TS EAMCET 2019 · 3 May · Shift 2 MCQ

The ratio in which the line $x + y - 1 = 0$ divides the line segment joining the origin and the point of intersection of the lines represented by $2x^2 - 13xy - 7y^2 + x + 23y - 6 = 0$ is

(A) $15 : 11$
(B) $-11 : 15$
(C) $7 : 3$
(D) $7 : 19$

Answer: (A) $15 : 11$ · Official TGCHE final key

Q809 AP EAMCET 2019 · 23 Apr · Shift 1 MCQ

A line moves such that the portion of it intercepted between the coordinate axes is of constant length a, then the locus of the mid point of that line segment is

(A) $\frac{x^2}{4} + \frac{y^2}{4} = a^2$
(B) $x^2 + y^2 = a^2$
(C) $x^2 + y^2 = \frac{a^2}{4}$
(D) $x^2 + y^2 = \frac{a^2}{2}$

Answer: (C) $x^2 + y^2 = \frac{a^2}{4}$ · Official APSCHE final key

Q810 AP EAMCET 2019 · 23 Apr · Shift 1 MCQ

If (h, k) be the point to which the origin has to be shifted in order to get the transformed equation of $y^2 - 4x + 6y + 17 = 0$ as $y^2 = 4ax$, then $h^2 + k^2 =$

(A) 11
(B) 1
(C) 25
(D) 13

Answer: (D) 13 · Official APSCHE final key

Q811 AP EAMCET 2019 · 23 Apr · Shift 1 MCQ

The intercept form of the equation of the straight line passing through the point $(4, -3)$ and perpendicular to the line passing through the points $(1, 1)$ and $(2, 3)$ is

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(A) $\frac{x-4}{1}=\frac{y+3}{1}$
(B) $\frac{x}{-2}+\frac{y}{-1}=1$
(C) $\frac{x}{8}-\frac{y}{6}=1$
(D) $\frac{x}{1}+\frac{y}{1}=1$

Answer: (B) $\frac{x}{-2}+\frac{y}{-1}=1$ · Official APSCHE final key

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Q812 AP EAMCET 2019 · 23 Apr · Shift 1 MCQ

If $x+2y-3=0,\ 3x+4y-7=0,\ 2x+3y-4=0$ and $4x+5y-6=0$ are the equations of four lines, then

(A) they are the sides of a square
(B) they are all concurrent lines
(C) they are the sides of a parallelogram
(D) not all of them are concurrent

Answer: (D) not all of them are concurrent · Official APSCHE final key

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Q813 AP EAMCET 2019 · 23 Apr · Shift 1 MCQ

Two equal sides of an isosceles triangle are given by $7x-y+3=0$ and $x+y-3=0$. If the slope m of the third side is an integer, then $m=$

(A) 3
(B) 1
(C) -1
(D) -3

Answer: (D) -3 · Official APSCHE final key

Q814 AP EAMCET 2019 · 23 Apr · Shift 1 MCQ

The pair of lines $lx^2+2(l+m)xy+my^2=0$ lies along two diameters of a circle and divides the circle into 4 sectors. If the area of bigger sector is 5 times the area of smaller sector, then $\frac{lm}{(l+m)^2}=$

(A) $\frac{1}{2}$
(B) $\frac{2}{\sqrt{3}}$
(C) $\frac{11}{12}$
(D) $\frac{13}{12}$

Answer: (C) $\frac{11}{12}$ · Official APSCHE final key

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Q815 AP EAMCET 2019 · 23 Apr · Shift 1 MCQ

The line $3x + 4y - 5 = 0$ cuts the curve $2x^2 + 3y^2 = 5$ at A and B. If 'O' is the origin, then $\angle AOB =$

(A) $\frac{\pi}{6}$
(B) $\frac{\pi}{3}$
(C) $\frac{\pi}{2}$
(D) $\frac{\pi}{8}$

Answer: (C) $\frac{\pi}{2}$ · Official APSCHE final key

Q816 AP EAMCET 2019 · 22 Apr · Shift 1 MCQ

A straight line meets the X and Y axes at the points A, B respectively. If AB = 6 units, then the locus of the point P which divides the line segment AB such that AP:PB = 2:1 is

(A) $3x^2 + y^2 = 36$
(B) $4x^2 + y^2 = 36$
(C) $3x^2 + y^2 = 16$
(D) $4x^2 + y^2 = 16$

Answer: (D) $4x^2 + y^2 = 16$ · Official APSCHE final key

Q817 AP EAMCET 2019 · 22 Apr · Shift 1 MCQ

The set of values that β can assume so that the point $(0, \beta)$ should lie on or inside the triangle having sides $3x + y + 2 = 0,\ 2x - 3y + 5 = 0$ and $x + 4y - 14 = 0$ is

(A) $\left[\frac{5}{3}, \frac{7}{2}\right]$
(B) $\left[\frac{2}{3}, \frac{5}{2}\right]$
(C) $\left[-\frac{1}{3}, \frac{2}{3}\right]$
(D) $\left[\frac{1}{2}, \frac{5}{2}\right]$

Answer: (A) $\left[\frac{5}{3}, \frac{7}{2}\right]$ · Official APSCHE final key

Q818 AP EAMCET 2019 · 22 Apr · Shift 1 MCQ

If $(\lambda^2, \lambda + 1), \lambda \in Z$ belongs to the region between the lines $x + 2y - 5 = 0$ and $3x - y + 1 = 0$ which includes the origin, then the possible number of such points is:

(A) 4
(B) 3
(C) 2
(D) Infinite

Answer: (C) 2 · Official APSCHE final key

Q819 AP EAMCET 2019 · 22 Apr · Shift 1 MCQ

If the mid points of the sides BC, CA and AB of a triangle ABC, are respectively $(2,1)$, $(-1,-2)$ and $(3,3)$, then the equation of the side BC is

(A) $x-2y=0$
(B) $5x-4y=6$
(C) $2x+3y=8$
(D) $3x-2y=6$

Answer: (B) $5x-4y=6$ · Official APSCHE final key

Q820 AP EAMCET 2019 · 22 Apr · Shift 1 MCQ

The distance between the pair of lines $x^2+2\sqrt{2}xy+2y^2+4x+4\sqrt{2}y+1=0$ is

(A) $4\sqrt{2}$
(B) $2\sqrt{2}$
(C) 2
(D) $6\sqrt{2}$

Answer: (C) 2 · Official APSCHE final key

Q821 AP EAMCET 2019 · 22 Apr · Shift 1 MCQ

A pair of lines S = 0 together with the lines given by the equation $8x^2-14xy+3y^2+10x+10y-25=0$ form a parallelogram. If its diagonals intersect at the point $(3,2)$, then the equation S = 0 is

(A) $6x^2-9xy+y^2-25x+30y+25=0$
(B) $8x^2-14xy+3y^2-25x+30y+50=0$
(C) $8x^2-14xy+3y^2-50x+50y+75=0$
(D) $6x^2+14xy-3y^2-30x+40y-75=0$

Answer: (C) $8x^2-14xy+3y^2-50x+50y+75=0$ · Official APSCHE final key

Q822 AP EAMCET 2019 · 22 Apr · Shift 2 MCQ

If the points $A\left(0,\frac{4}{3}\right)$, $B(-1,0)$ and $C(1,0)$ are such that the distance from a point P to the line BC is equal to the geometric mean of the distances from P to the lines AB and AC, then the point P lies on the curve

(A) $x^2+y^2+3y-2=0$
(B) $x^2-y^2+12y-8=0$
(C) $2(x^2+y^2)+4x+7=0$
(D) $2(x^2+y^2)+3y-2=0$

Answer: (D) $2(x^2+y^2)+3y-2=0$ · Official APSCHE final key

Q823 AP EAMCET 2019 · 22 Apr · Shift 2 MCQ

Let P be the point $(4, 1)$ and Q be its image in the line $y = x$. If Q is translated through a distance 2 units along the negative Y-axis to reach the point R, then the co-ordinates of R are

(A) $(-1, 2)$
(B) $(1, -2)$
(C) $(-1, -2)$
(D) $(1, 2)$

Answer: (D) $(1, 2)$ · Official APSCHE final key

Q824 AP EAMCET 2019 · 22 Apr · Shift 2 MCQ

The normal form of the line $x + y + 1 = 0$ is

(A) $x\cos(45^\circ) + y\sin(135^\circ) = \frac{1}{\sqrt{2}}$
(B) $x\cos(45^\circ) + y\sin(45^\circ) = \frac{1}{\sqrt{2}}$
(C) $x\cos(225^\circ) + y\sin(225^\circ) = \frac{1}{\sqrt{2}}$
(D) $x\cos(45^\circ) + y\sin(45^\circ) = -\frac{1}{\sqrt{2}}$

Answer: (C) $x\cos(225^\circ) + y\sin(225^\circ) = \frac{1}{\sqrt{2}}$ · Official APSCHE final key

Q825 AP EAMCET 2019 · 22 Apr · Shift 2 MCQ

The vertices of a triangle OBC are $O(0, 0)$, $B(-3, -1)$ and $C(-1, -3)$. If the line joining the point D on OC and E on OB is parallel to BC and the perpendicular distance of O from DE is $\frac{1}{2}$, then the equation of DE is

(A) $x + y + \sqrt{2} = 0$
(B) $2x + 2y - \sqrt{2} = 0$
(C) $2x + 2y + \sqrt{2} = 0$
(D) $2x - 2y + \sqrt{2} = 0$

Answer: (C) $2x + 2y + \sqrt{2} = 0$ · Official APSCHE final key

Q826 AP EAMCET 2019 · 22 Apr · Shift 2 MCQ

A variable line passing through the fixed point (α, β) intersects the co-ordinate axes at A and B. If O is the origin, then the locus of the centroid of the triangle OAB is

(A) $\beta x + \alpha y = 3xy$
(B) $\alpha x + \beta y = 3xy$
(C) $\alpha x - \beta y = 3xy$
(D) $\beta x - \alpha y = 3xy$

Answer: (A) $\beta x + \alpha y = 3xy$ · Official APSCHE final key

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Q827 AP EAMCET 2019 · 22 Apr · Shift 2 MCQ

If A is the orthocentre of the triangle formed by $2x^2 - y^2 = 0$, $x + y - 1 = 0$ and B is the centroid of the triangle formed by $2x^2 - 5xy + 2y^2 = 0$, $7x - 2y - 12 = 0$, then the distance between A and B is

(A) $\sqrt{5}$
(B) 1
(C) 5
(D) $\sqrt{2}$

Answer: (A) $\sqrt{5}$ · Official APSCHE final key

Q828 AP EAMCET 2019 · 22 Apr · Shift 2 MCQ

The distance between the pair of lines represented by $x^2 + 2\sqrt{2}xy + 2y^2 + 4x + 4\sqrt{2}y + 1 = 0$, is

(A) 1
(B) 2
(C) $\sqrt{2}$
(D) 4

Answer: (B) 2 · Official APSCHE final key

Q829 AP EAMCET 2019 · 21 Apr · Shift 1 MCQ

For any value of θ, if the straight lines $x\sin\theta + (1 - \cos\theta)y = a\sin\theta$ and $x\sin\theta - (1 + \cos\theta)y + a\sin\theta = 0$ intersect at $P(\theta)$, then the locus of $P(\theta)$ is a

(A) straight line
(B) circle
(C) parabola
(D) hyperbola

Answer: (B) circle · Official APSCHE final key

Q830 AP EAMCET 2019 · 21 Apr · Shift 1 MCQ

A line L has intercepts a and b on the coordinate axes. When the axes are rotated through a given angle θ keeping the origin fixed, this line L has the intercepts p and q. Then

(A) $a^2 + b^2 = p^2 + q^2$
(B) $a^2 + p^2 = b^2 + q^2$
(C) $\frac{1}{a^2} + \frac{1}{p^2} = \frac{1}{b^2} + \frac{1}{q^2}$
(D) $\frac{1}{a^2} + \frac{1}{b^2} = \frac{1}{p^2} + \frac{1}{q^2}$

Answer: (D) $\frac{1}{a^2} + \frac{1}{b^2} = \frac{1}{p^2} + \frac{1}{q^2}$ · Official APSCHE final key

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Q831 AP EAMCET 2019 · 21 Apr · Shift 1 MCQ

If O is the origin and A and B are points on the line $3x - 4y + 25 = 0$ such that $\overline{OA} = \overline{OB} = 13$, then the area of ΔOAB (in sq. units) is

(A) 30
(B) 120
(C) 60
(D) 65

Answer: (C) 60 · Official APSCHE final key

Q832 AP EAMCET 2019 · 21 Apr · Shift 1 MCQ

If $P(\alpha, \beta)$ be a point on the line $3x + y = 0$ such that the point P and the point $Q(1, 1)$ lie on either side of the line $3x = 4y + 8$, then

(A) $\alpha > \frac{8}{15}, \beta < \frac{-8}{5}$
(B) $\alpha < \frac{8}{15}, \beta < \frac{-8}{5}$
(C) $\alpha > \frac{8}{15}, \beta > \frac{-8}{5}$
(D) $\alpha < \frac{8}{15}, \beta > \frac{-8}{5}$

Answer: (A) $\alpha > \frac{8}{15}, \beta < \frac{-8}{5}$ · Official APSCHE final key

Q833 AP EAMCET 2019 · 21 Apr · Shift 1 MCQ

Two vertices of a triangle are $(5, -1)$ and $(-2, 3)$. If the origin is the orthocentre of this triangle, then the coordinates of the third vertex of that triangle are

(A) $(4, 7)$
(B) $\left(-2, \frac{-7}{2}\right)$
(C) $(-4, -7)$
(D) $(-2, 3)$

Answer: (C) $(-4, -7)$ · Official APSCHE final key

Q834 AP EAMCET 2019 · 21 Apr · Shift 1 MCQ

The distance from the origin to the orthocentre of the triangle formed by the lines $x + y - 1 = 0$ and $6x^2 - 13xy + 5y^2 = 0$ is

(A) $\frac{11\sqrt{2}}{2}$
(B) 13
(C) 11
(D) $\frac{11\sqrt{2}}{24}$

Answer: (D) $\frac{11\sqrt{2}}{24}$ · Official APSCHE final key

Q835 AP EAMCET 2019 · 21 Apr · Shift 1 MCQ

The combined equation of two lines L and L_1 is $2x^2 + axy + 3y^2 = 0$ and the combined equation of two lines L and L_2 is $2x^2 + bxy - 3y^2 = 0$. If L_1 and L_2 are perpendicular, then $a^2 + b^2 =$

(A) 26
(B) 29
(C) 13
(D) 85

Answer: (A) 26 · Official APSCHE final key

Q836 AP EAMCET 2019 · 21 Apr · Shift 2 MCQ

If the sum of the distances from a variable point P to the given points $A(1, 0)$ and $B(0, 1)$ is 2 then the locus of P is

(A) $3x^2 + 3y^2 - 4x - 4y = 0$
(B) $16x^2 + 7y^2 - 64x - 48y = 0$
(C) $3x^2 + 2xy + 3y^2 - 4x - 4y = 0$
(D) $16x^2 + 38xy + 7y^2 - 64x - 48y = 0$

Answer: (C) $3x^2 + 2xy + 3y^2 - 4x - 4y = 0$ · Official APSCHE final key

Q837 AP EAMCET 2019 · 21 Apr · Shift 2 MCQ

If the equation of a curve C is transformed to $9x^2 + 25y^2 = 225$ by the rotation of the coordinate axes about the origin through an angle $\frac{\pi}{4}$ in the positive direction then the equation of the curve C, before the transformation is

(A) $17x^2 + 16xy + 17y^2 = 225$
(B) $17x^2 + 23y^2 = 391$
(C) $17x^2 - 16xy + 17y^2 = 225$
(D) $23x^2 + 17y^2 = 391$

Answer: (C) $17x^2 - 16xy + 17y^2 = 225$ · Official APSCHE final key

Q838 AP EAMCET 2019 · 21 Apr · Shift 2 MCQ

A straight line $4x + y - 1 = 0$ through the point $A(2, -7)$ meets the line BC whose equation is $3x - 4y + 1 = 0$ at the point B. Then the equation of the line AC such that $AB = AC$, is

(A) $89x - 52y - 162 = 0$
(B) $52x + 89y + 519 = 0$
(C) $4x - y - 15 = 0$
(D) $4x + 3y + 13 = 0$

Answer: (B) $52x + 89y + 519 = 0$ · Official APSCHE final key

Q839 AP EAMCET 2019 · 21 Apr · Shift 2 MCQ

In a ΔABC, $2x + 3y + 1 = 0$, $x + 2y - 2 = 0$ are the perpendicular bisectors of its sides AB and AC respectively and if $A = (3, 2)$, then the equation of the side BC is

(A) $x + y - 3 = 0$
(B) $x - y - 3 = 0$
(C) $2x - y - 2 = 0$
(D) $2x + y - 2 = 0$

Answer: (B) $x - y - 3 = 0$ · Official APSCHE final key

Q840 AP EAMCET 2019 · 21 Apr · Shift 2 MCQ

If the perpendicular bisector of the line segment joining $A(\alpha, 3)$ and $B(2, -1)$ has y-intercept 1, then $\alpha =$

(A) 0
(B) ± 1
(C) ± 2
(D) ± 3

Answer: (C) ± 2 · Official APSCHE final key

Q841 AP EAMCET 2019 · 21 Apr · Shift 2 MCQ

The number of values of a for which the pair of lines represented by $3ax^2 + 5xy + (a^2 - 2)y^2 = 0$ are at right angles to each other, is

(A) 2
(B) 1
(C) infinitely many
(D) 0

Answer: (A) 2 · Official APSCHE final key

Q842 AP EAMCET 2019 · 21 Apr · Shift 2 MCQ

If the pair of lines joining the origin and the points of intersection of the line $ax + by = 1$ and the curve $x^2 + y^2 - x - y - 1 = 0$ are at right angles, then the locus of the point (a, b) is a circle of radius

(A) 2
(B) $\sqrt{3/2}$
(C) $\sqrt{5/2}$
(D) $\frac{\sqrt{5}}{2}$

Answer: (C) $\sqrt{5/2}$ · Official APSCHE final key

Q843 AP EAMCET 2019 · 20 Apr · Shift 1 MCQ

Two straight rods of lengths 2a and 2b move along the coordinate axes in such a way that their extremities are always concyclic. Then the locus of the centres of such circles is

(A) $2(x^2+y^2)=a^2+b^2$
(B) $2(x^2-y^2)=a^2+b^2$
(C) $x^2+y^2=a^2+b^2$
(D) $x^2-y^2=a^2-b^2$

Answer: (D) $x^2-y^2=a^2-b^2$ · Official APSCHE final key

Q844 AP EAMCET 2019 · 20 Apr · Shift 1 MCQ

When the coordinate axes are rotated about the origin in the positive direction through an angle $\frac{\pi}{4}$, if the equation $25x^2+9y^2=225$ is transformed to $\alpha x^2+\beta xy+\gamma y^2=\delta$, then $\left(\alpha+\beta+\gamma-\sqrt{\delta}\right)^2=$

(A) 3
(B) 9
(C) 4
(D) 16

Answer: (B) 9 · Official APSCHE final key

Q845 AP EAMCET 2019 · 20 Apr · Shift 1 MCQ

The equation of the line through the point of intersection of the lines $3x-4y+1=0$ and $5x+y-1=0$ and making equal non-zero intercepts on the coordinate axes is

(A) $2x+2y=3$
(B) $23x+23y=6$
(C) $23x+23y=11$
(D) $2x+2y=7$

Answer: (C) $23x+23y=11$ · Official APSCHE final key

Q846 AP EAMCET 2019 · 20 Apr · Shift 1 MCQ

The line through P $(a,2)$, where $a\neq 0$, making an angle 45° with the positive direction of the X-axis meets the curve $\frac{x^2}{9}+\frac{y^2}{4}=1$ at A and D and the coordinate axes at B and C. If PA, PB, PC and PD are

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in a geometric progression then $2a =$

(A) 13
(B) 7
(C) 1
(D) -13

Answer: (A) 13 · Official APSCHE final key

Q847 AP EAMCET 2019 · 20 Apr · Shift 1 MCQ

The equation of the perpendicular bisectors of the sides AB and AC of a ΔABC are $x - y + 5 = 0$ and $x + 2y = 0$ respectively. If A is $(1, -2)$, then the equation of the straight line BC is

(A) $14x + 23y - 40 = 0$
(B) $12x + 17y - 28 = 0$
(C) $14x - 29y - 30 = 0$
(D) $7x - 12y + 15 = 0$

Answer: (A) $14x + 23y - 40 = 0$ · Official APSCHE final key

Q848 AP EAMCET 2019 · 20 Apr · Shift 1 MCQ

If each line of a pair of lines passing through origin is at a perpendicular distance of 4 units from the point $(3, 4)$, then the equation of the pair of lines is

(A) $7x^2 + 24xy = 0$
(B) $7y^2 + 24xy = 0$
(C) $7y^2 - 24xy = 0$
(D) $7x^2 - 24xy = 0$

Answer: (B) $7y^2 + 24xy = 0$ · Official APSCHE final key

Q849 AP EAMCET 2019 · 20 Apr · Shift 1 MCQ

Variable straight lines $y = mx + c$ make intercepts on the curve $y^2 - 4ax = 0$ which subtend a right angle at the origin. Then the point of concurence of these lines $y = mx + c$ is

(A) $(4a, 0)$
(B) $(2a, 0)$
(C) $(-4a, 0)$
(D) $(-2a, 0)$

Answer: (A) $(4a, 0)$ · Official APSCHE final key

Q850 AP EAMCET 2019 · 20 Apr · Shift 2 MCQ

The locus of a point $P(x, y)$ satisfying the equation $\sqrt{(x-2)^2 + y^2} + \sqrt{(x+2)^2 + y^2} = 4$, is

(A) an ellipse
(B) a parabola
(C) a line segment
(D) a circle

Answer: (C) a line segment · Official APSCHE final key

Q851 AP EAMCET 2019 · 20 Apr · Shift 2 MCQ

If the origin is shifted to $(2,3)$ and the axes are rotated through an angle 45° about that point, then the transformed equation of $2x^2+2y^2-8x-12y+18=0$ is

(A) $x^2-7y^2-14xy-2=0$
(B) $x^2+y^2=4$
(C) $x^2-y^2=4$
(D) $8x^2-2y^2=9$

Answer: (B) $x^2+y^2=4$ · Official APSCHE final key

Q852 AP EAMCET 2019 · 20 Apr · Shift 2 MCQ

A line passing through $P(4,2)$ cuts the coordinate axes at A and B respectively. If O is the origin, then the locus of the centre of the circum-circle of ΔOAB is

(A) $x^{-1}+y^{-1}=2$
(B) $2x^{-1}+y^{-1}=1$
(C) $x^{-1}+2y^{-1}=1$
(D) $2x^{-1}+3y^{-1}=1$

Answer: (B) $2x^{-1}+y^{-1}=1$ · Official APSCHE final key

Q853 AP EAMCET 2019 · 20 Apr · Shift 2 MCQ

The centroid of the triangle formed by the lines $x+y-1=0$, $x-y-1=0$, $x-3y+3=0$ is

(A) $\left(\frac{4}{3},1\right)$
(B) $\left(\frac{-4}{3},1\right)$
(C) $\left(\frac{8}{3},3\right)$
(D) $\left(\frac{-8}{3},3\right)$

Answer: (A) $\left(\frac{4}{3},1\right)$ · Official APSCHE final key

Q854 AP EAMCET 2019 · 20 Apr · Shift 2 MCQ

The quadratic equation whose roots are the coordinates of the circumcentre of the triangle formed by the points $(-2,-1)$, $(6,-1)$, $(2,5)$ is

(A) $x^2 - 5x + 6 = 0$
(B) $2x^2 - 9x + 9 = 0$
(C) $3x^2 - 8x + 4 = 0$
(D) $6x^2 - 13x + 6 = 0$

Answer: (C) $3x^2 - 8x + 4 = 0$ · Official APSCHE final key

Q855 AP EAMCET 2019 · 20 Apr · Shift 2 MCQ

The straight line $x + y + 1 = 0$ bisects an angle between a pair of lines, of which one is $2x - 3y + 4 = 0$. Then the equation of the other line in that pair is

(A) $2x + 3y + 4 = 0$
(B) $x - y + 1 = 0$
(C) $5x - 5y + 9 = 0$
(D) $3x - 2y + 5 = 0$

Answer: (D) $3x - 2y + 5 = 0$ · Official APSCHE final key

Q856 AP EAMCET 2019 · 20 Apr · Shift 2 MCQ

If the pairs of straight lines represented by $3x^2 + 2hxy - 3y^2 = 0$ and $3x^2 + 2hxy - 3y^2 + 2x - 4y + c = 0$ form a square then $(h, c) =$

(A) $(4, -1)$
(B) $(-1, 4)$
(C) $(-4, 1)$
(D) $(1, -4)$

Answer: (A) $(4, -1)$ · Official APSCHE final key

Q857 AP EAMCET 2019 · 20 Apr · Shift 2 MCQ

The equation of the bisectors of the angles between the lines joining the origin to the points of intersection of the curve $x^2 + xy + y^2 + x + 3y + 1 = 0$ and the line $x + y + 2 = 0$ is

(A) $x^2 + 4xy - y^2 = 0$
(B) $2x^2 + 5xy - y^2 = 0$
(C) $x^2 + 6xy - 2y^2 = 0$
(D) $2x^2 - 4xy + 2y^2 = 0$

Answer: (A) $x^2 + 4xy - y^2 = 0$ · Official APSCHE final key

Q858 TS EAMCET 2018 · 7 May · Shift 1 MCQ

If $A = (-1, 2)$ and $B = (1, -2)$ are two points and P is a variable point such that the area of $\triangle PAB$ is always one, then the equation of the locus of P is

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(A) $4x^2 + 4xy + y^2 = 1$
(B) $x^2 + 10xy + 25y^2 - 34x - 170y = 0$
(C) $x^2 - 6xy + 9y^2 + 22x - 66y - 23 = 0$
(D) $16x^2 - 24xy + 9y^2 - 62x + 34y + 46 = 0$

Answer: (A) $4x^2 + 4xy + y^2 = 1$ · The council's preliminary key

Q859 TS EAMCET 2018 · 7 May · Shift 1 MCQ

The point $(4, 1)$ undergoes the following transformations successively :
I. Reflection about the line $y = x$
II. Translation through a distance 2 units in the direction of positive X-axis
III. Rotation through an angle $\frac{\pi}{4}$ about origin in the anticlockwise direction
Then the final position of the point is

(A) $\left(\frac{7}{\sqrt{2}}, \frac{1}{\sqrt{2}}\right)$
(B) $(\sqrt{2}, 7\sqrt{2})$
(C) $(-\sqrt{2}, 7\sqrt{2})$
(D) $\left(\frac{1}{\sqrt{2}}, -\frac{7}{\sqrt{2}}\right)$

Answer: (A) $\left(\frac{7}{\sqrt{2}}, \frac{1}{\sqrt{2}}\right)$ · The council's preliminary key

Q860 TS EAMCET 2018 · 7 May · Shift 1 MCQ

The image of the point $(2, 4)$ with respect to the straight line $2x + 3y - 6 = 0$ is

(A) $\left(-\frac{14}{13}, -\frac{8}{13}\right)$
(B) $\left(\frac{14}{13}, \frac{8}{13}\right)$
(C) $\left(-\frac{2}{13}, -\frac{4}{13}\right)$
(D) $\left(-\frac{2}{7}, -\frac{8}{7}\right)$

Answer: (A) $\left(-\frac{14}{13}, -\frac{8}{13}\right)$ · The council's preliminary key

Q861 TS EAMCET 2018 · 7 May · Shift 1 MCQ

The equation of the base of an equilateral triangle is $12x + 5y - 65 = 0$. If one of its vertices is $(2, 3)$, then the length of the side is

(A) $\frac{4}{13}$
(B) $\frac{2}{\sqrt{3}}$
(C) $\frac{4}{\sqrt{3}}$
(D) $\frac{2}{13}$

Answer: (C) $\frac{4}{\sqrt{3}}$ · The council's preliminary key

Q862 TS EAMCET 2018 · 7 May · Shift 1 MCQ

A triangle is formed by Y-axis, the straight line L passing through the points $(3,0)$, $\left(1,\frac{4}{3}\right)$ and the straight line perpendicular to the line L and passing through the point $(8,1)$. Then the area of that triangle (in square units) is

(A) 16
(B) 21
(C) 36
(D) 39

Answer: (D) 39 · The council's preliminary key

Q863 TS EAMCET 2018 · 7 May · Shift 1 MCQ

For $c \neq 0$, $c \neq 1$ if the straight lines $x+y=1$, $2x-y=c$ and $bx+2by=c$ have one common point, then

(A) $c<1 \Rightarrow b \in \left(-3,\frac{3}{4}\right)$
(B) $c>1 \Rightarrow b \in \left(-\frac{3}{4},3\right)$
(C) $c<1 \Rightarrow b \in \left(-3,\frac{3}{2}\right)$
(D) $c>1 \Rightarrow b \in \left(-\frac{3}{4},\frac{3}{4}\right)$

Answer: (A) $c<1 \Rightarrow b \in \left(-3,\frac{3}{4}\right)$ · The council's preliminary key

Q864 TS EAMCET 2018 · 7 May · Shift 1 MCQ

If the lines represented by $x^2-2hxy-y^2=0$ are rotated about $(0,0)$ through an angle α one in clockwise direction and the other in the counter clockwise direction, then the combined equation of the bisectors of the angle between the lines thus obtained is

(A) $x^2 - y^2 + hxy = 0$
(B) $x^2 - 2hxy + y^2 = 0$
(C) $hx^2 - hy^2 + 2xy = 0$
(D) $hx^2 + hy^2 - xy = 0$

Answer: (C) $hx^2 - hy^2 + 2xy = 0$ · The council's preliminary key

Q865 TS EAMCET 2018 · 5 May · Shift 1 MCQ

For $a \neq b \neq c$, if the lines $x + 2ay + a = 0$, $x + 3by + b = 0$ and $x + 4cy + c = 0$ are concurrent, then a, b, c are in

(A) Arithmetic progression
(B) Geometric progression
(C) Harmonic progression
(D) Arthemetico geometric progression

Answer: (C) Harmonic progression · The council's preliminary key

Q866 TS EAMCET 2018 · 5 May · Shift 1 MCQ

A point moves in the XY-plane such that the sum of its distances from two mutually perpendicular lines is always equal to 3. The area enclosed by the locus of that point is (in sq. units)

(A) 27
(B) 18
(C) 9
(D) $\frac{9}{2}$

Answer: (B) 18 · The council's preliminary key

Q867 TS EAMCET 2018 · 5 May · Shift 1 MCQ

The equations of two altitudes of an equilateral triangle are $\sqrt{3}x - y + 8 - 4\sqrt{3} = 0$ and $\sqrt{3}x + y - 12 - 4\sqrt{3} = 0$. The equation of the third altitude is

(A) $\sqrt{3}x + y = 4$
(B) $y = 10$
(C) $x = 10$
(D) $x - \sqrt{3y} = 4$

Answer: (B) $y = 10$ · The council's preliminary key

Q868 TS EAMCET 2018 · 5 May · Shift 1 MCQ

If $P_1, P_2, P_3, \ldots, P_n$ are n points on the line $y = x$ all lying in the first quadrant, such that $(OP_n) = n(OP_{n-1})$ (O is origin), $OP_1 = 1$ and $P_n = (2520\sqrt{2}, 2520\sqrt{2})$, then $n =$

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(A) 5
(B) 6
(C) 7
(D) 8

Answer: (C) 7 · The council's preliminary key

Q869 TS EAMCET 2018 · 5 May · Shift 1 MCQ

The straight line $x + y + 1 = 0$ bisects an angle between the pair of lines of which one is $2x + 3y - 4 = 0$. Then the equation of the other line is

(A) $3x - 2y + 9 = 0$
(B) $3x - 2y - 9 = 0$
(C) $3x + 2y + 9 = 0$
(D) $x - y - 1 = 0$

Answer: (C) $3x + 2y + 9 = 0$ · The council's preliminary key

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Q870 TS EAMCET 2018 · 5 May · Shift 1 MCQ

The combined equation of the pair of straight lines passing through the point of intersection of the pair of lines $x^2 + 4xy + 3y^2 - 4x - 10y + 3 = 0$ and having slopes $\frac{1}{2}$ and $-\frac{1}{3}$ is

(A) $x^2 - y^2 - 8x - 2y + 15 = 0$
(B) $x^2 + 7xy + 12y^2 - x - 4y = 0$
(C) $x^2 + 7xy + 10y^2 - x - 8y - 2 = 0$
(D) $x^2 + xy - 6y^2 - 7x - 16y + 6 = 0$

Answer: (D) $x^2 + xy - 6y^2 - 7x - 16y + 6 = 0$ · The council's preliminary key

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Q871 TS EAMCET 2018 · 5 May · Shift 1 MCQ

If P is (3, 1) and Q is a point on the curve $y^2 = 8x$, then the locus of the mid point of the line segment PQ is

(A) $4y^2 - 12x - 6y + 21 = 0$
(B) $4y^2 - 16x - 4y + 25 = 0$
(C) $4y^2 + 8x - 3y - 18 = 0$
(D) $4y^2 - 12x + 8y - 15 = 0$

Answer: (B) $4y^2 - 16x - 4y + 25 = 0$ · The council's preliminary key

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Q872 TS EAMCET 2018 · 5 May · Shift 1 MCQ

The lines of the form $x\cos\phi + y\sin\phi = p$ are chords of the hyperbola $4x^2 - y^2 = 4a^2$ which subtend a right angle at the centre of the hyperbola. If these chords touch a circle with centre at (0, 0), then the radius of that circle is

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(A) $\frac{2a}{\sqrt{3}}$
(B) $\frac{a}{\sqrt{3}}$
(C) $\sqrt{2}a$
(D) $\frac{a}{\sqrt{2}}$

Answer: (A) $\frac{2a}{\sqrt{3}}$ · The council's preliminary key

Q873 TS EAMCET 2018 · 5 May · Shift 2 MCQ

Let $Q(x_1, y_1)$ be a variable point and $R(1, 0)$ be a point on the circle $x^2 + y^2 = 1$ and P be the mid point of QR. Then the locus of the point P is

(A) $x^2 + y^2 - 2x = 0$
(B) $x^2 + y^2 + x = 0$
(C) $x^2 + y^2 + 2x = 0$
(D) $x^2 + y^2 - x = 0$

Answer: (D) $x^2 + y^2 - x = 0$ · The council's preliminary key

Q874 TS EAMCET 2018 · 5 May · Shift 2 MCQ

The point P(3, 2) undergoes the following transformations successively
(i) Reflection about the line $y = x$
(ii) Translation to a distance of 3 units in the positive direction of x-axis
(iii) Rotation through an angle $\frac{\pi}{4}$ about the origin in the counter-clockwise direction
Then, the final position of that point is

(A) $(2, 4)$
(B) $(4\sqrt{2}, -\sqrt{2})$
(C) $\left(\frac{1}{\sqrt{2}}, \sqrt{2}\right)$
(D) $(\sqrt{2}, 2\sqrt{2})$

Answer: (B) $(4\sqrt{2}, -\sqrt{2})$ · The council's preliminary key

Q875 TS EAMCET 2018 · 5 May · Shift 2 MCQ

The equation of the straight line which is perpendicular to the line $5x - 2y = 7$ and passing through the point of intersection of the lines $2x + 3y - 1 = 0$ and $3x + 4y - 6 = 0$ is

(A) $2x + 5y - 17 = 0$
(B) $2x + 5y + 17 = 0$
(C) $2x + 5y + 47 = 0$
(D) $2x + 5y - 47 = 0$

Answer: (B) $2x + 5y + 17 = 0$ · The council's preliminary key

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Q876 TS EAMCET 2018 · 5 May · Shift 2 MCQ

The angle between the line joining the points $(1, -2), (3, 2)$ and the line $x + 2y - 7 = 0$ is

(A) 0
(B) $\frac{\pi}{4}$
(C) $\frac{\pi}{2}$
(D) π

Answer: (C) $\frac{\pi}{2}$ · The council's preliminary key

Q877 TS EAMCET 2018 · 5 May · Shift 2 MCQ

The vertices of a triangle are $A(1, 7), B(-5, -1)$ and $C(-1, 2)$. Then, the equation of a bisector of the $\angle ABC$ is

(A) $x - y + 4 = 0$
(B) $x + y + 4 = 0$
(C) $2x - 3y + 6 = 0$
(D) $x - 2y + 4 = 0$

Answer: (A) $x - y + 4 = 0$ · The council's preliminary key

Q878 TS EAMCET 2018 · 5 May · Shift 2 MCQ

Let $3x^2 + 8xy - 3y^2 = 0$ represent the lines L_1, L_2 and $3x^2 + 8xy - 3y^2 + 2x - 4y - 1 = 0$ represent the lines L_3, L_4. Let L be the line joining the points of intersection of L_1, L_3 and L_2, L_4. Then the area (in square units) of the triangle formed by L with the coordinate axes is

(A) $\frac{1}{2}$
(B) $\frac{1}{4}$
(C) $\frac{1}{8}$
(D) $\frac{1}{16}$

Answer: (D) $\frac{1}{16}$ · The council's preliminary key

Q879 TS EAMCET 2018 · 5 May · Shift 2 MCQ

The equation of pair of lines passing through origin and forming an equilateral triangle with the line $3x + 4y - 5 = 0$ is

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(A) $39x^2 + 11y^2 - 96xy = 0$
(B) $x^2 + y^2 - 4xy = 0$
(C) $x^2 - 7xy + 12y^2 = 0$
(D) $2x^2 + 6xy + y^2 = 0$

Answer: (A) $39x^2 + 11y^2 - 96xy = 0$ · The council's preliminary key

Q880 TS EAMCET 2018 · 4 May · Shift 1 MCQ

A quadrilateral $ABCD$ is divided by the diagonal AC into two triangles of equal areas. If[] A, B, C are respectively $(3, 4)$, $(-3, 6)$, $(-5, 1)$, then the locus of D is

(A) $(x - 8y - 57)(x - 8y + 11) = 0$
(B) $(x - 8y - 57)(x - 8y - 11) = 0$
(C) $(3x - 8y - 57)(3x - 8y + 11) = 0$
(D) $(3x - 8y - 11)(3x - 8y + 57) = 0$

Answer: (D) $(3x - 8y - 11)(3x - 8y + 57) = 0$ · The council's preliminary key

Q881 TS EAMCET 2018 · 4 May · Shift 1 MCQ

By rotating the coordinate axes in the positive direction about the origin by an angle α[,] if the point $(1, 2)$ is transformed to $\left(\frac{3\sqrt{3} - 1}{2\sqrt{2}}, \frac{\sqrt{3} + 3}{2\sqrt{2}}\right)$ in new coordinate system then $\alpha =$

(A) $\frac{\pi}{3}$
(B) $\frac{\pi}{6}$
(C) $\frac{\pi}{9}$
(D) $\frac{\pi}{12}$

Answer: (D) $\frac{\pi}{12}$ · The council's preliminary key

Q882 TS EAMCET 2018 · 4 May · Shift 1 MCQ

Let $a \neq 0$, $b \neq 0$, c be three real numbers and $L(p, q) = \frac{ap + bq + c}{\sqrt{a^2 + b^2}}$, $\forall p, q \in \mathbb{R}$. If $L\left(\frac{2}{3}, \frac{1}{3}\right) + L\left(\frac{1}{3}, \frac{2}{3}\right) + L(2, 2) = 0$, then the line $ax + by + c = 0$ always passes throug[h] the fixed point

(A) $(0, 1)$
(B) $(1, 1)$
(C) $(2, 2)$
(D) $(-1, -1)$

Answer: (B) $(1, 1)$ · The council's preliminary key

Q883 TS EAMCET 2018 · 4 May · Shift 1 MCQ

The incentre of the triangle formed by the straight line having 3 as X - intercept and 4 a[s] Y - intercept, together with the coordinate axes, is

(A) $(2,2)$
(B) $\left(\frac{3}{2},\frac{3}{2}\right)$
(C) $(1,2)$
(D) $(1,1)$

Answer: (D) $(1,1)$ · The council's preliminary key

Q884 TS EAMCET 2018 · 4 May · Shift 1 MCQ

The equation of the straight line in the normal form which is parallel to the lines $x+2y+3=0$ and $x+2y+8=0$ and dividing the distance between these two lines in the[] ratio 1 : 2 internally is

(A) $x\cos\alpha+y\sin\alpha=\frac{10}{\sqrt{45}},\ \alpha=\mathrm{Tan}^{-1}\sqrt{2}$
(B) $x\cos\alpha+y\sin\alpha=\frac{14}{\sqrt{45}},\ \alpha=\pi+\mathrm{Tan}^{-1}2$
(C) $x\cos\alpha+y\sin\alpha=\frac{14}{\sqrt{45}},\ \alpha=\mathrm{Tan}^{-1}2$
(D) $x\cos\alpha+y\sin\alpha=\frac{10}{\sqrt{45}},\ \alpha=\pi+\mathrm{Tan}^{-1}\sqrt{2}$

Answer: (B) $x\cos\alpha+y\sin\alpha=\frac{14}{\sqrt{45}},\ \alpha=\pi+\mathrm{Tan}^{-1}2$ · The council's preliminary key

Q885 TS EAMCET 2018 · 4 May · Shift 1 MCQ

A pair of straight lines is passing through the point $(1,1)$. One of the lines makes an angl[e] θ with the positive direction of X-axis and the other makes the same angle with the positiv[e] direction of Y-axis. If the equation of the pair of straight lines is $x^2-(a+2)xy+y^2+a(x+y-1)=0,\ a\neq-2$, then the value of θ is

(A) $\frac{1}{2}\mathrm{Sin}^{-1}\left(\frac{2}{a+2}\right)$
(B) $\frac{1}{2}\sin\left(\frac{2}{a+2}\right)$
(C) $\frac{1}{2}\mathrm{Tan}^{-1}\left(\frac{2}{a+2}\right)$
(D) $\frac{1}{2}\tan\left(\frac{2}{a+2}\right)$

Answer: (A) $\frac{1}{2}\mathrm{Sin}^{-1}\left(\frac{2}{a+2}\right)$ · The council's preliminary key

Q886 TS EAMCET 2018 · 4 May · Shift 1 MCQ

If the pair of lines $6x^2+xy-y^2=0$ and $3x^2-axy-y^2=0,\ a>0$ have a common line, then $a=$

(A) $\frac{1}{2}$
(B) 1
(C) 2
(D) 4

Answer: (A) $\frac{1}{2}$ · The council's preliminary key

Q887 TS EAMCET 2018 · 4 May · Shift 2 MCQ

If the line joining the points $A(b\cos\alpha,\ b\sin\alpha)$ and $B(a\cos\beta,\ a\sin\beta)$ is extended to the point $N(x, y)$ such that $AN : NB = b : a$, then

(A) $x\cos\frac{\alpha-\beta}{2} + y\sin\frac{\alpha+\beta}{2} = 0$
(B) $x\cos\frac{\alpha-\beta}{2} + y\sin\frac{\alpha-\beta}{2} = 0$
(C) $x\cos\frac{\alpha+\beta}{2} + y\sin\frac{\alpha+\beta}{2} = 0$
(D) $x\cos\frac{\alpha+\beta}{2} + y\sin\frac{\alpha-\beta}{2} = 0$

Answer: (C) $x\cos\frac{\alpha+\beta}{2} + y\sin\frac{\alpha+\beta}{2} = 0$ · The council's preliminary key

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Q888 TS EAMCET 2018 · 4 May · Shift 2 MCQ

A straight line $x - 2y - 4 = 0$ is shifted parallel to it by 3 units away from the origin and then rotated by an angle of 30° in the anticlockwise direction. If the slope of the new line formed is m, then the integral part of 'm' is

(A) -1
(B) 0
(C) 1
(D) 2

Answer: (C) 1 · The council's preliminary key

Q889 TS EAMCET 2018 · 4 May · Shift 2 MCQ

If α and β are the angles made by the normals drawn from the origin to the lines $x + y + \sqrt{2} = 0$ and $x - \sqrt{3}y - 2 = 0$ with the positive direction of the X-axis respectively measured in anti-clockwise direction, then $\alpha + \beta =$

(A) $-\frac{13\pi}{12}$
(B) $\frac{29\pi}{12}$
(C) $-\frac{11\pi}{12}$
(D) $\frac{35\pi}{12}$

Answer: (D) $\frac{35\pi}{12}$ · The council's preliminary key

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Q890 TS EAMCET 2018 · 4 May · Shift 2 MCQ

The straight lines $x+3y-4=0,\ x+y-4=0$ and $3x+y-4=0$

(A) form an isosceles triangle
(B) are concurrent
(C) form an equilateral triangle
(D) form a right angled isosceles triangle

Answer: (A) form an isosceles triangle · The council's preliminary key

Q891 TS EAMCET 2018 · 4 May · Shift 2 MCQ

The combined equation of the straight lines passing through $(1,1)$ and making an angle of 45° with the straight line $x+y-1=0$ is

(A) $2x^2+3xy-2y^2-7x+y+1=0$
(B) $xy-x-y+1=0$
(C) $xy+2y^2-x-5y-3=0$
(D) $2x^2-xy-3x+y+1=0$

Answer: (B) $xy-x-y+1=0$ · The council's preliminary key

Q892 TS EAMCET 2018 · 4 May · Shift 2 MCQ

The centroid of the triangle formed by the pair of straight lines $12x^2-20xy+7y^2=0$ and the line $2x-3y+4=0$ is (α,β). Then $\alpha+2\beta=$

(A) $-\frac{4}{3}$
(B) 2
(C) 8
(D) $-\frac{8}{3}$

Answer: (C) 8 · The council's preliminary key

Q893 TS EAMCET 2018 · 4 May · Shift 2 MCQ

The equation of the bisectors of the angles between the lines joining the origin to the points of intersection of the curve $x^2+xy+y^2+x+3y+1=0$ and the straight line $x+y+2=0$ is

(A) $2x^2-4xy+y^2=0$
(B) $x^2-4xy+y^2=0$
(C) $2x^2+4xy+y^2=0$
(D) $x^2+4xy-y^2=0$

Answer: (D) $x^2+4xy-y^2=0$ · The council's preliminary key

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Q894 AP EAMCET 2018 · 24 Apr · Shift 1 MCQ

A variable line 'L' passing through the origin cuts two parallel lines $x - y + 10 = 0$ and $x - y + 20 = 0$ at two points A and B respectively. If P is a point on line 'L' such that OA, OP, OB are in harmonic progression, then the locus of P is

(A) $3x + 3y + 40 = 0$
(B) $3x + 3y + 20 = 0$
(C) $3x - 3y + 40 = 0$
(D) $3x - 3y + 20 = 0$

Answer: (C) $3x - 3y + 40 = 0$ · The council's preliminary key

Q895 AP EAMCET 2018 · 24 Apr · Shift 1 MCQ

When the coordinate axes are rotated through an angle of 45° about the origin in the positive direction, if the transformed equation of a curve is $17x^2 - 16xy + 17y^2 = 225$, then the original equation of that curve is

(A) $25x^2 + 9y^2 = 225$
(B) $9x^2 - 25y^2 = 225$
(C) $25x^2 - 16xy + 9y^2 = 225$
(D) $9x^2 + 25y^2 = 225$

Answer: (A) $25x^2 + 9y^2 = 225$ · The council's preliminary key

Q896 AP EAMCET 2018 · 24 Apr · Shift 1 MCQ

The vertex A of a triangle lies on the lines $x + y = 1$ and $2x + 3y = 6$. If the orthocentre of the triangle is $O\left(\frac{3}{7}, \frac{22}{7}\right)$, then the equation of OA in the normal form is

(A) $x\cos\alpha + y\sin\alpha = 7;\ \alpha = \mathrm{Tan}^{-1}\frac{1}{7}$
(B) $x\cos\alpha + y\sin\alpha = \frac{13}{\sqrt{17}};\ \alpha = \mathrm{Tan}^{-1}\left(\frac{1}{4}\right)$
(C) $x\cos\alpha + y\sin\alpha = \frac{13}{4};\ \alpha = \mathrm{Tan}^{-1}\left(\frac{13}{\sqrt{17}}\right)$
(D) $x\cos\alpha + y\sin\alpha = \frac{13}{\sqrt{17}};\ \alpha = \mathrm{Tan}^{-1}(4)$

Answer: (D) $x\cos\alpha + y\sin\alpha = \frac{13}{\sqrt{17}};\ \alpha = \mathrm{Tan}^{-1}(4)$ · The council's preliminary key

Q897 AP EAMCET 2018 · 24 Apr · Shift 1 MCQ

The equation of the line passing through the point of intersection of the lines $2x + 3y + 6 = 0$, $3x - y - 13 = 0$ and parallel to the line $3x - 4y + 5 = 0$ is

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(A) $3x - 4y + 75 = 0$
(B) $3x - 4y + 15 = 0$
(C) $3x - 4y + 25 = 0$
(D) $3x - 4y - 25 = 0$

Answer: (D) $3x - 4y - 25 = 0$ · The council's preliminary key

Q898 AP EAMCET 2018 · 24 Apr · Shift 1 MCQ

If O, G, S are respectively the orthocentre, centroid and circumcentre of a triangle whose vertices are $A(2,3)$, $B(2,4)$ and $C(4,3)$, then $AO^2 + 9BG^2 + 4CS^2 =$

(A) $\frac{77}{36}$
(B) 13
(C) $\frac{8}{9}$
(D) $\frac{5}{4}$

Answer: (B) 13 · The council's preliminary key

Q899 AP EAMCET 2018 · 24 Apr · Shift 1 MCQ

If two sides of a triangle are given by $3x^2 - 5xy + 2y^2 = 0$ and its orthocentre is $(2,1)$, then the equation of the third side of the triangle is

(A) $5x - 10y + 1 = 0$
(B) $10x + 5y - 1 = 0$
(C) $5x - 10y = 21$
(D) $10x + 5y = 21$

Answer: (D) $10x + 5y = 21$ · The council's preliminary key

Q900 AP EAMCET 2018 · 24 Apr · Shift 1 MCQ

The equation of the pair of lines joining the origin to the points of intersection of two circles $x^2 + y^2 - 4x + 8y + 5 = 0$ and $x^2 + y^2 + 2x + 4y - 3 = 0$ is

(A) $13x^2 + 6xy - 28y^2 = 0$
(B) $xy - 28y^2 = 0$
(C) $(x + 4)(x - 5) = 0$
(D) $13x^2 + 68xy - 28y^2 = 0$

Answer: (D) $13x^2 + 68xy - 28y^2 = 0$ · The council's preliminary key

Q901 AP EAMCET 2018 · 24 Apr · Shift 2 MCQ

A(5, 3), B(3, −2), C(2, −1) are three points. If P is a variable point such that the area of the quadrilateral PABC is 10 sq. units, then the locus of P is

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(A) $16x^2 - 24xy + 9y^2 - 144x + 108y - 76 = 0$
(B) $16x^2 - 24xy + 9y^2 + 144x - 108y - 76 = 0$
(C) $16x^2 - 24xy + 9y^2 - 144x + 108y + 76 = 0$
(D) $16x^2 - 24xy + 9y^2 + 144x - 108y + 76 = 0$

Answer: (A) $16x^2 - 24xy + 9y^2 - 144x + 108y - 76 = 0$ · The council's preliminary key

Q902 AP EAMCET 2018 · 24 Apr · Shift 2 MCQ

If the origin is shifted to the point (1, 1) and the axes are rotated through an angle 45° about this point, then the transformed equation of the equation $x^2 + 2xy + y^2 - 1 = 0$ is

(A) $2y^2 - 4\sqrt{2}y - 3 = 0$
(B) $2y^2 + 4\sqrt{2}y - 3 = 0$
(C) $2x^2 + 4\sqrt{2}x + 3 = 0$
(D) $2x^2 - 4\sqrt{2}x + 3 = 0$

Answer: (C) $2x^2 + 4\sqrt{2}x + 3 = 0$ · The council's preliminary key

Q903 AP EAMCET 2018 · 24 Apr · Shift 2 MCQ

A line is passing through the point (4, 3) and the sum of its intercepts made on the coordinate axes is 14. Then an equation of that line is

(A) $3x + 4y = 24$
(B) $6x + 8y = 24$
(C) $4x + 3y = 25$
(D) $4x - 3y = 7$

Answer: (A) $3x + 4y = 24$ · The council's preliminary key

Q904 AP EAMCET 2018 · 24 Apr · Shift 2 MCQ

If (x_1, y_1) and (x_2, y_2) are two points on the line $x + y + 3 = 0$ such that each of them is at a distance of $\sqrt{5}$ units from the line $x + 2y + 2 = 0$, then $x_1 + x_2 + y_1 + y_2 =$

(A) -6
(B) 20
(C) 6
(D) -20

Answer: (A) -6 · The council's preliminary key

Q905 AP EAMCET 2018 · 24 Apr · Shift 2 MCQ

Match the following.
List - I
A) The equation of line passing through (4, 3) whose X-intercept is twice its Y-intercept

B) The equation of the line passing through the centroid and circumcentre of Δ ABC with vertices A (1, 1), B (3, 3), C (6, -6)
C) The equation of the line whose X-intercept is $\left(\frac{-3}{5}\right)$ and is perpendicular to $x - y + 2 = 0$
D) The equation of the line whose distance from the origin is 2 and the normal drawn from the origin makes an angle 45° with the positive direction of X-axis
List - II
I) $x + y - 2\sqrt{2} = 0$
II) $7x + 23y - 8 = 0$
III) $x + 2y + \sqrt{2} = 0$
IV) $x + 2y - 10 = 0$
V) $5x + 5y + 3 = 0$
The correct answer is

(A) A-V, B-IV, C-II, D-I
(B) A-III, B-V, C-IV, D-II
(C) A-IV, B-II, C-V, D-I
(D) A-II, B-I, C-III, D-V

Answer: (C) A-IV, B-II, C-V, D-I · The council's preliminary key

Q906 AP EAMCET 2018 · 24 Apr · Shift 2 MCQ

If (a, b) is the centroid of the triangle formed by the lines $4x^2 - 17xy + 4y^2 = 0$ and $x + y - 5 = 0$ and c is the numerical value of the area of the triangle, then $a + b + c =$

(A) $\frac{25}{6}$
(B) $\frac{25}{3}$
(C) $\frac{65}{6}$
(D) $\frac{15}{3}$

Answer: (C) $\frac{65}{6}$ · The council's preliminary key

Q907 AP EAMCET 2018 · 24 Apr · Shift 2 MCQ

If the lines represented by the equation $4xy + 6x - 8y + c = 0$ form a rectangle with the coordinate axis then the area of the rectangle (in sq. units) is

(A) $|c|$
(B) $\left|\frac{c}{2}\right|$
(C) $\left|\frac{c}{4}\right|$
(D) $\left|\frac{c}{8}\right|$

Answer: (C) $\left|\frac{c}{4}\right|$ · The council's preliminary key

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Q908 AP EAMCET 2018 · 23 Apr · Shift 1 MCQ

Let A, B and C be three points in a plane. The locus of a point P moving such that $\mathrm{PA}^2 + \mathrm{PB}^2 = 2\,\mathrm{PC}^2$ is a

(A) Straight line
(B) Pair of straight lines
(C) Circle
(D) Parabola

Answer: (A) Straight line · The council's preliminary key

Q909 AP EAMCET 2018 · 23 Apr · Shift 1 MCQ

When the coordinate axes are rotated by an angle $\mathrm{Tan}^{-1}\left(\frac{3}{4}\right)$ about the origin, then the equation $x^2 + y^2 = 9$ is transformed to the equation

(A) $x^2 - y^2 = 9$
(B) $x^2 + y^2 + 2xy = 4$
(C) $x^2 + y^2 = 9$
(D) $x^2 - y^2 + 9 = 0$

Answer: (C) $x^2 + y^2 = 9$ · The council's preliminary key

Q910 AP EAMCET 2018 · 23 Apr · Shift 1 MCQ

Let a, b and c be distinct and none of them is equal to 1. If the lines $x + ay + a = 0$, $bx + y + b = 0$ and $cx + cy + 1 = 0$ are concurrent, then the value of $\frac{a}{a-1} + \frac{b}{b-1} + \frac{c}{c-1}$ is

(A) 1
(B) -1
(C) 2
(D) 0

Answer: (A) 1 · The council's preliminary key

Q911 AP EAMCET 2018 · 23 Apr · Shift 1 MCQ

If $ad - bc \neq 0$, then the area (in sq. units) of the parallelogram formed by the lines $ax + by + 2 = 0$, $ax + by + 5 = 0$, $cx + dy + 3 = 0$ and $cx + dy + 7 = 0$ is

(A) $\frac{1}{|ad-bc|}$
(B) $\frac{5}{|ad-bc|}$
(C) $\frac{7}{|ad-bc|}$
(D) $\frac{12}{|ad-bc|}$

Answer: (D) $\frac{12}{|ad-bc|}$ · The council's preliminary key

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Q912 AP EAMCET 2018 · 23 Apr · Shift 1 MCQ

The circumcentre of the triangle with vertices at $(-2, 3)$, $(1, -2)$ and $(2, 1)$ is

(A) $\left(\frac{6}{7}, \frac{2}{7}\right)$
(B) $\left(-\frac{6}{7}, \frac{2}{7}\right)$
(C) $\left(\frac{6}{7}, -\frac{2}{7}\right)$
(D) $\left(-\frac{6}{7}, -\frac{2}{7}\right)$

Answer: (B) $\left(-\frac{6}{7}, \frac{2}{7}\right)$ · The council's preliminary key

Q913 AP EAMCET 2018 · 23 Apr · Shift 1 MCQ

If the straight line $2x + 3y + 1 = 0$ bisects the angle between a pair of lines, one of which in this pair is $3x + 2y + 4 = 0$, then the equation of the other line in that pair of lines is

(A) $3x + 4y - 9 = 0$
(B) $6x - 7y - 14 = 0$
(C) $9x + 46y - 28 = 0$
(D) $9x - 23y - 12 = 0$

Answer: (C) $9x + 46y - 28 = 0$ · The council's preliminary key

Q914 AP EAMCET 2018 · 23 Apr · Shift 1 MCQ

The area (in sq.units) of the triangle formed by the straight line $x + y = 3$ and the angular bisectors of the pair of straight lines $x^2 - y^2 + 2y = 1$, is

(A) 1
(B) 2
(C) 3
(D) 6

Answer: (B) 2 · The council's preliminary key

Q915 AP EAMCET 2018 · 23 Apr · Shift 1 MCQ

The product of the lengths of the perpendiculars drawn from the point $(-1, 5)$ to the pair of lines $2x^2 - xy - 3y^2 + 6x + y + 4 = 0$ is

(A) $\frac{68}{\sqrt{2}}$
(B) $\frac{68}{\sqrt{26}}$
(C) $\frac{65}{\sqrt{2}}$
(D) $\frac{65}{\sqrt{26}}$

Answer: (D) $\frac{65}{\sqrt{26}}$ · The council's preliminary key

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Q916 AP EAMCET 2018 · 23 Apr · Shift 2 MCQ

If a point P moves such that the sum of the distances from P to the points A$(1,-1)$ and B$(-1,1)$ is always 4, then the equation for the locus of P is

(A) $16x^2-64x+7y^2=48$
(B) $3x^2+2xy+3y^2=8$
(C) $6x+4y=3$
(D) $x^2+y^2-8x+6y=0$

Answer: (B) $3x^2+2xy+3y^2=8$ · The council's preliminary key

Q917 AP EAMCET 2018 · 23 Apr · Shift 2 MCQ

The transformed equation of $3x^2-6xy+8y^2=8$ when the axes are rotated about the origin through an angle $\frac{\pi}{4}$ in the positive direction, is

(A) $5x^2+10xy+17y^2+16=0$
(B) $5x^2+10xy+17y^2-16=0$
(C) $5x^2-10xy+17y^2-16=0$
(D) $5x^2-10xy+17y^2+16=0$

Answer: (B) $5x^2+10xy+17y^2-16=0$ · The council's preliminary key

Q918 AP EAMCET 2018 · 23 Apr · Shift 2 MCQ

A variable line passing through a fixed point (α,β) intersects the coordinate axes at A and B. If O is the origin, then the locus of the centroid of the triangle OAB is

(A) $\beta x+\alpha y-2\alpha\beta=0$
(B) $\beta x+\alpha y-3xy=0$
(C) $\alpha x+\beta y-\left(\alpha^2+\beta^2\right)=0$
(D) $\beta x+\alpha y+3xy=0$

Answer: (B) $\beta x+\alpha y-3xy=0$ · The council's preliminary key

Q919 AP EAMCET 2018 · 23 Apr · Shift 2 MCQ

If $m=1$ is the slope of a line L, then the product of the slopes of non-parallel lines which are inclined at an angle of 60° with L is

(A) 1
(B) -1
(C) $\sqrt{3}$
(D) $-\frac{1}{2}$

Answer: (A) 1 · The council's preliminary key

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Q920 AP EAMCET 2018 · 23 Apr · Shift 2 MCQ

The area (in sq.units) of the quardilateral (sic) formed by the lines $2x + 3y + 6 = 0$, $2x - 3y + 6 = 0$, $2x + 3y - 6 = 0$ and $2x - 3y - 6 = 0$ is

(A) 12
(B) 36
(C) 6
(D) 18

Answer: (A) 12 · The council's preliminary key

Q921 AP EAMCET 2018 · 23 Apr · Shift 2 MCQ

If the straight lines $2x + 3y - 1 = 0$, $x + 2y - 1 = 0$ and $ax + by - 1 = 0$ form a triangle with orthocentre at the origin, then $(a, b) =$

(A) $(-8, 8)$
(B) $(0, 7)$
(C) $(6, 4)$
(D) $(-3, 3)$

Answer: (A) $(-8, 8)$ · The council's preliminary key

Q922 AP EAMCET 2018 · 23 Apr · Shift 2 MCQ

The product of the perpendicular distances from $(1, -1)$ to the pair of lines $x^2 - 4xy + y^2 = 0$, is

(A) 1
(B) $\frac{2}{3}$
(C) $\frac{3}{2}$
(D) 2

Answer: (C) $\frac{3}{2}$ · The council's preliminary key

Q923 AP EAMCET 2018 · 22 Apr · Shift 1 MCQ

Let A(2, 3), B(3, -6), C(5, -7) be three points. If P is a point satisfying the condition $PA^2 + PB^2 = 2PC^2$, then a point that lies on the locus of P is

(A) $(2, -5)$
(B) $(-2, 5)$
(C) $(13, 10)$
(D) $(-13, -10)$

Answer: (D) $(-13, -10)$ · The council's preliminary key

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Q924 AP EAMCET 2018 · 22 Apr · Shift 1 MCQ

If the coordinates of a point P changes to $(2, -6)$ when the coordinate axes are rotated through an angle of 135°, then the coordinates of P in the original system are

(A) $(-2, 6)$
(B) $(-6, 2)$
(C) $(2\sqrt{2}, 4\sqrt{2})$
(D) $(\sqrt{2}, -\sqrt{2})$

Answer: (C) $(2\sqrt{2}, 4\sqrt{2})$ · The council's preliminary key

Q925 AP EAMCET 2018 · 22 Apr · Shift 1 MCQ

If the portion of a line intercepted between the coordinate axes is divided by the point $(2, -1)$ in the ratio 3:2, then the equation of that line is

(A) $5x - 2y - 20 = 0$
(B) $2x - y - 5 = 0$
(C) $3x - y - 7 = 0$
(D) $x - 3y - 5 = 0$

Answer: (D) $x - 3y - 5 = 0$ · The council's preliminary key

Q926 AP EAMCET 2018 · 22 Apr · Shift 1 MCQ

The equation of the line passing through the point of intersection of the lines $2x + y - 4 = 0$, $x - 3y + 5 = 0$ and lying at a distance of $\sqrt{5}$ units from the origin, is

(A) $x - 2y - 5 = 0$
(B) $x + 2y - 5 = 0$
(C) $x + 2y + 5 = 0$
(D) $x - 2y + 5 = 0$

Answer: (B) $x + 2y - 5 = 0$ · The council's preliminary key

Q927 AP EAMCET 2018 · 22 Apr · Shift 1 MCQ

The equation of the line joining the centroid with the orthocentre of the triangle formed by the points $(-2, 3)$, $(2, -1)$, $(4, 0)$ is

(A) $x + y - 2 = 0$
(B) $11x - y - 14 = 0$
(C) $x - 11y + 6 = 0$
(D) $2x - y - 2 = 0$

Answer: (B) $11x - y - 14 = 0$ · The council's preliminary key

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Q928 AP EAMCET 2018 · 22 Apr · Shift 1 MCQ

The lines represented by the equations $23x^2 - 48xy + 3y^2 = 0$ and $2x + 3y + 4 = 0$ form

(A) an isosceles triangle
(B) a right angled triangle
(C) an equilateral triangle
(D) a scalene triangle

Answer: (C) an equilateral triangle · The council's preliminary key

Q929 AP EAMCET 2018 · 22 Apr · Shift 1 MCQ

If the line $x + 2y = k$ intersects the curve $x^2 - xy + y^2 + 3x + 3y - 2 = 0$ at two points A and B and if O is the origin, then the condition for $\angle AOB = 90^\circ$ is

(A) $k^2 + k + 1 = 0$
(B) $k^2 - 2k + 1 = 0$
(C) $2k^2 + 9k - 10 = 0$
(D) $3k^2 + 8k - 1 = 0$

Answer: (C) $2k^2 + 9k - 10 = 0$ · The council's preliminary key

Q930 AP EAMCET 2018 · 22 Apr · Shift 1 MCQ

If $2x^2 + 3xy - 2y^2 = 0$ represents two sides of a parallelogram and $3x + y + 1 = 0$ is one of its diagonals, then the other diagonal is

(A) $x - 3y + 1 = 0$
(B) $x - 3y + 2 = 0$
(C) $x - 3y = 0$
(D) $3x - y = 0$

Answer: (C) $x - 3y = 0$ · The council's preliminary key

Q931 AP EAMCET 2018 · 22 Apr · Shift 2 MCQ

The equation of the locus of a point $(2\cos\theta - 3,\ 3\sin\theta - 4)$ is

(A) $9x^2 + 4y^2 + 54x + 32y + 181 = 0$
(B) $4x^2 + 9y^2 + 54x + 32y + 109 = 0$
(C) $9x^2 + 4y^2 - 54x + 32y + 109 = 0$
(D) $9x^2 + 4y^2 + 54x + 32y + 109 = 0$

Answer: (D) $9x^2 + 4y^2 + 54x + 32y + 109 = 0$ · The council's preliminary key

EdLoop EAPCET

Q932 AP EAMCET 2018 · 22 Apr · Shift 2 MCQ

When the origin is shifted to the point $(2, 3)$ and then the coordinate axes are rotated through an angle $\frac{\pi}{3}$ in the counter clockwise sense, then the transformed equation of $3x^2 + 2xy + 3y^2 - 18x - 22y + 50 = 0$ is

(A) $3x^2 + 3y^2 - 1 = 0$
(B) $(6 + \sqrt{3})x^2 - 2xy + (6 - \sqrt{3})y^2 - 2 = 0$
(C) $4x^2 + 2y^2 - 1 = 0$
(D) $(6 - \sqrt{3})x^2 + (6 + \sqrt{3})y^2 + 2xy = 0$

Answer: (B) $(6 + \sqrt{3})x^2 - 2xy + (6 - \sqrt{3})y^2 - 2 = 0$ · The council's preliminary key

Q933 AP EAMCET 2018 · 22 Apr · Shift 2 MCQ

A straight line L with negative slope passes through the point $(1, 1)$ and cuts the positive coordinate axes at the points A and B. If O is the origin, then the minimum value of $OA + OB$ as L varies, is

(A) 1
(B) 2
(C) 3
(D) 4

Answer: (D) 4 · The council's preliminary key

Q934 AP EAMCET 2018 · 22 Apr · Shift 2 MCQ

If the straight line $L \equiv 3x + 4y - k = 0$ cuts the line segment joining the points $P(2, -1)$ and $Q(1, 1)$ in the ratio $4 : 1$, then the equation of the line parallel to the line $y = x$ and concurrent with the lines PQ and $L = 0$ is

(A) $2x - 2y + 7 = 0$
(B) $x - y + 1 = 0$
(C) $5x - 5y - 3 = 0$
(D) $y = x + 3$

Answer: (C) $5x - 5y - 3 = 0$ · The council's preliminary key

Q935 AP EAMCET 2018 · 22 Apr · Shift 2 MCQ

The orthocentre and the centroid of ΔABC are $(5, 8)$ and $\left(3, \frac{14}{3}\right)$ respectively. The equation of the side BC is $x - y = 0$. Given that the image of the orthocentre of a triangle with respect to any side lies on the circumcircle of that triangle, then the diameter of the circumcircle of ΔABC is

(A) $\sqrt{10}$
(B) $2\sqrt{10}$
(C) $4\sqrt{10}$
(D) $8\sqrt{10}$

Answer: (C) $4\sqrt{10}$ · The council's preliminary key

Q936 AP EAMCET 2018 · 22 Apr · Shift 2 MCQ

If a pair of perpendicular lines through the origin together with the straight line $2x + 3y = 6$ form an isosceles triangle then the area of that triangle (in sq. units) is

(A) $\frac{6}{\sqrt{13}}$
(B) $\frac{6}{13}$
(C) $\frac{36}{13}$
(D) $\frac{27}{13}$

Answer: (C) $\frac{36}{13}$ · The council's preliminary key

Q937 AP EAMCET 2018 · 22 Apr · Shift 2 MCQ

If the equation $3x^2 + 7xy + 2y^2 + 2gx + 2fy + 2 = 0$ represents a pair of intersecting lines and the square of the distance of their point of intersection from the origin is $\frac{2}{5}$ then $f^2 + g^2 =$

(A) $\frac{25}{4}$
(B) 25
(C) 50
(D) $\frac{25}{2}$

Answer: (D) $\frac{25}{2}$ · The council's preliminary key

Q938 TS EAMCET 2017 · 12 May · Offline MCQ

If $A = (5, 3)$, $B = (3, -2)$ and a point P is such that the area of the triangle PAB is 9, then the locus of P represents

(A) a circle
(B) a pair of coincident lines
(C) a pair of parallel lines
(D) a pair of perpendicular lines

Answer: (C) a pair of parallel lines · The council's preliminary key

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Q939 TS EAMCET 2017 · 12 May · Offline MCQ

A straight line makes an intercept on the Y-axis twice as long as that on X-axis and is at a unit distance from the origin. Then the line is represented by the equations

(A) $2x + 3y = \pm\sqrt{5}$
(B) $x + y = \pm 2$
(C) $x - y = \pm 2$
(D) $2x + y = \pm\sqrt{5}$

Answer: (D) $2x + y = \pm\sqrt{5}$ · The council's preliminary key

Q940 TS EAMCET 2017 · 12 May · Offline MCQ

If the perpendicular distance between the point $(1, 1)$ to the line $3x + 4y + c = 0$ is 7, then the possible values of c are

(A) $-35, 42$
(B) $35, 28$
(C) $42, -28$
(D) $28, -42$

Answer: (D) $28, -42$ · The council's preliminary key

Q941 TS EAMCET 2017 · 12 May · Offline MCQ

The equation of the straight line passing through the point of intersection of $5x - 6y - 1 = 0$, $3x + 2y + 5 = 0$ and perpendicular to the line $3x - 5y + 11 = 0$ is

(A) $5x + 3y + 18 = 0$
(B) $-5x - 3y + 18 = 0$
(C) $5x + 3y + 8 = 0$
(D) $5x + 3y - 8 = 0$

Answer: (C) $5x + 3y + 8 = 0$ · The council's preliminary key

Q942 TS EAMCET 2017 · 12 May · Offline MCQ

If $2x^2 - 10xy + 2\lambda y^2 + 5x - 16y - 3 = 0$ represents a pair of straight lines, then point of intersection of those lines is

(A) $(2, -3)$
(B) $(5, -16)$
(C) $\left(-10, \frac{-7}{2}\right)$
(D) $\left(-10, \frac{-3}{2}\right)$

Answer: (C) $\left(-10, \frac{-7}{2}\right)$ · The council's preliminary key

Q943 TS EAMCET 2017 · 12 May · Offline MCQ

In order to eliminate the first degree terms from the equation $4x^2 + 8xy + 10y^2 - 8x - 44y + 14 = 0$ the point to which the origin has to be shifted is

(A) $(-2, 3)$
(B) $(2, -3)$
(C) $(1, -3)$
(D) $(-1, 3)$

Answer: (A) $(-2, 3)$ · The council's preliminary key

Q944 TS EAMCET 2017 · 12 May · Offline MCQ

If the pair of straight lines $xy - x - y + 1 = 0$ and the line $x + ay - 3 = 0$ are concurrent, then the acute angle between the pair of lines $ax^2 - 13xy - 7y^2 + x + 23y - 6 = 0$ is

(A) $\cos^{-1}\left(\frac{5}{\sqrt{218}}\right)$
(B) $\cos^{-1}\left(\frac{1}{\sqrt{10}}\right)$
(C) $\cos^{-1}\left(\frac{5}{\sqrt{173}}\right)$
(D) $\cos^{-1}\left(\frac{1}{\sqrt{5}}\right)$

Answer: (B) $\cos^{-1}\left(\frac{1}{\sqrt{10}}\right)$ · The council's preliminary key

Q945 AP EAMCET 2017 · 26 Apr · Shift 1 MCQ

The point to which the origin is to be shifted to remove the first degree terms from the equation $2x^2 + 4xy - 6y^2 + 2x + 8y + 1 = 0$ is

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(A) $\left(\frac{7}{8}, \frac{3}{8}\right)$
(B) $\left(\frac{7}{8}, \frac{-3}{8}\right)$
(C) $\left(\frac{-7}{8}, \frac{3}{8}\right)$
(D) $\left(\frac{-7}{8}, \frac{-3}{8}\right)$

Answer: (C) $\left(\frac{-7}{8}, \frac{3}{8}\right)$ · The council's preliminary key

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Q946 AP EAMCET 2017 · 26 Apr · Shift 1 MCQ

The incentre of the triangle formed by the straight lines $y = \sqrt{3}x,\ y = -\sqrt{3}x$ and $y = 3$ is

(A) $(1, 2)$
(B) $(0, 2)$
(C) $(2, 1)$
(D) $(2, 0)$

Answer: (B) $(0, 2)$ · The council's preliminary key

Q947 AP EAMCET 2017 · 26 Apr · Shift 1 MCQ

The set of all values of 'a' such that both the points $(1, 2)$ and $(3, 4)$ lie on the same side of the line $3x - 5y + a = 0$

(A) $\{x \in \mathbb{R} : x > 11\}$
(B) $\{x \in \mathbb{R} : x < 7\}$
(C) $\{x \in \mathbb{R} : x > 11\} \cup \{x \in \mathbb{R} : x < 7\}$
(D) ϕ

Answer: (C) $\{x \in \mathbb{R} : x > 11\} \cup \{x \in \mathbb{R} : x < 7\}$ · The council's preliminary key

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Q948 AP EAMCET 2017 · 26 Apr · Shift 1 MCQ

The points on the straight line $3x - 4y - 1 = 0$ which are at a distance of 5 units from the point $(3, 2)$ are

(A) $\left(1, \frac{1}{2}\right), \left(2, \frac{5}{4}\right)$
(B) $\left(-2, -\frac{7}{4}\right), \left(-3, \frac{-5}{2}\right)$
(C) $\left(4, \frac{11}{4}\right), (-1, -1)$
(D) $(7, 5), (-1, -1)$

Answer: (D) $(7, 5), (-1, -1)$ · The council's preliminary key

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Q949 AP EAMCET 2017 · 26 Apr · Shift 1 MCQ

The equation of the pair of lines through the point $(2, 1)$ and perpendicular to the pair of lines $4xy + 2x + 6y + 3 = 0$ is

(A) $xy + x + 2y - 6 = 0$
(B) $xy - x + 2y - 2 = 0$
(C) $xy + x - 2y - 2 = 0$
(D) $xy - x - 2y + 2 = 0$

Answer: (D) $xy - x - 2y + 2 = 0$ · The council's preliminary key

Q950 AP EAMCET 2017 · 26 Apr · Shift 1 MCQ

If the pair of lines $x^2 - 16pxy - y^2 = 0$ and $x^2 - 16qxy - y^2 = 0$ are such that each pair bisects the angle between the other pair, then $pq =$

(A) $\frac{1}{8}$
(B) $\frac{-1}{8}$
(C) $\frac{1}{64}$
(D) $\frac{-1}{64}$

Answer: (D) $\frac{-1}{64}$ · The council's preliminary key

Q951 AP EAMCET 2017 · 26 Apr · Shift 1 MCQ

The figure formed by the pairs of lines $6x^2 + 13xy + 6y^2 = 0$ and $6x^2 + 13xy + 6y^2 + 10x + 10y + 4 = 0$, is a

(A) Square
(B) Rhombus
(C) Rectangle
(D) Parallelogram

Answer: (B) Rhombus · The council's preliminary key

Q952 AP EAMCET 2017 · 26 Apr · Shift 2 MCQ

A variable line through the point P(-1, 2) cuts the coordinate axes at A and B respectively. If Q is a point on AB such that PA, PQ and PB are in a harmonic progression, then the locus of Q is

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(A) $y^2 = 2x$
(B) $x^2 + y^2 = 1$
(C) $y = 2x$
(D) $x^2 = 4y$

Answer: (C) $y = 2x$ · The council's preliminary key

Q953 AP EAMCET 2017 · 26 Apr · Shift 2 MCQ

When the coordinate axes are rotated through an angle $\frac{\pi}{4}$ in the positive direction, an equation is transformed to $x^2 + y^2 - 6x + 8y + 21 = 0$. Then that original equation is

(A) $x^2 + y^2 - 7\sqrt{2}x + \sqrt{2}y + 21 = 0$
(B) $\sqrt{2}x^2 + \sqrt{2}y^2 - 7x + y + 21\sqrt{2} = 0$
(C) $x^2 + y^2 - 14x + 2y + 21 = 0$
(D) $x^2 + y^2 - 7\sqrt{2}x + \sqrt{2}y + 21\sqrt{2} = 0$

Answer: (A) $x^2 + y^2 - 7\sqrt{2}x + \sqrt{2}y + 21 = 0$ · The council's preliminary key

Q954 AP EAMCET 2017 · 26 Apr · Shift 2 MCQ

The point on the line $3x + y + 4 = 0$ which is equidistant from $(-5, 6)$ and $(3, 2)$ is

(A) $\left(\frac{-7}{5}, \frac{1}{5}\right)$
(B) $\left(\frac{7}{5}, \frac{-1}{5}\right)$
(C) $(2, -2)$
(D) $(-2, 2)$

Answer: (D) $(-2, 2)$ · The council's preliminary key

Q955 AP EAMCET 2017 · 26 Apr · Shift 2 MCQ

If $k_1 > k_2$ are the two values of k such that the lines $y - 3kx + 4 = 0$ and $(2k - 1)x - (8k - 1)y - 6 = 0$ are perpendicular, then the equation of the line passing through (k_1, k_2) and having the slope $\left(\frac{k_2}{k_1}\right)$ is

(A) $3x + 2y = 0$
(B) $6x - 2y = 3$
(C) $12x - 5y = 7$
(D) $6x + y = 0$

Answer: (D) $6x + y = 0$ · The council's preliminary key

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Q956 AP EAMCET 2017 · 26 Apr · Shift 2 MCQ

The in-centre of the triangle formed by the lines $x = 0$, $y = 0$ and $3x + 4y = 12$ is

(A) $\left(\frac{1}{2}, \frac{1}{2}\right)$
(B) $(1, 1)$
(C) $\left(1, \frac{1}{2}\right)$
(D) $\left(\frac{1}{2}, 1\right)$

Answer: (B) $(1, 1)$ · The council's preliminary key

Q957 AP EAMCET 2017 · 26 Apr · Shift 2 MCQ

The equation of the pair of lines is given by a second degree homogenous equation. If one of them is perpendicular to the line $x + 2y + 7 = 0$ and another line is parallel to the line $3x + 4y + 5 = 0$, then the equation of that pair of lines is

(A) $6x^2 - 5xy + 4y^2 = 0$
(B) $6x^2 + 5xy + 4y^2 = 0$
(C) $6x^2 - 5xy - 4y^2 = 0$
(D) $6x^2 + 5xy - 4y^2 = 0$

Answer: (D) $6x^2 + 5xy - 4y^2 = 0$ · The council's preliminary key

Q958 AP EAMCET 2017 · 26 Apr · Shift 2 MCQ

The lines $3x^2 + 8xy - 3y^2 + 2x - 4y - 1 = 0$ and $4x - 3y - 2 = 0$

(A) form an equilateral triangle
(B) form a right angled triangle
(C) form a right angled isosceles triangle
(D) are concurrent

Answer: (D) are concurrent · The council's preliminary key

Q959 AP EAMCET 2017 · 26 Apr · Shift 2 MCQ

If the chord $x + y = 1$ of the circle $x^2 + y^2 = a^2$ subtends a right angle at the origin, then $a =$

(A) 4
(B) $\sqrt{2}$
(C) 1
(D) 2

Answer: (C) 1 · The council's preliminary key

Q960 AP EAMCET 2017 · 25 Apr · Shift 1 MCQ

If P is a variable point such that the sum of the distances from P to the points $A(2,2)$ and $B(2,-2)$ is 4, then the locus of P represents

(A) an ellipse
(B) a vertical line
(C) segment of a vertical line
(D) segment of a horizontal line

Answer: (C) segment of a vertical line · The council's preliminary key

Q961 AP EAMCET 2017 · 25 Apr · Shift 1 MCQ

The point to which the origin is to be shifted to eliminate x and y terms of the equation $4x^2+9y^2-8x+36y+4=0$ is

(A) $(1,3)$
(B) $(-4,3)$
(C) $(-1,2)$
(D) $(1,-2)$

Answer: (D) $(1,-2)$ · The council's preliminary key

Q962 AP EAMCET 2017 · 25 Apr · Shift 1 MCQ

A line passing through the point $P(1,1)$ and parallel to the line $x-y=5$ cuts the line $x+3y-2=0$ at Q. Then twice the length of the segment PQ is

(A) $\sqrt{2}-1$
(B) $2\sqrt{3}-1$
(C) $\sqrt{2}$
(D) $\frac{1}{\sqrt{2}}$

Answer: (C) $\sqrt{2}$ · The council's preliminary key

Q963 AP EAMCET 2017 · 25 Apr · Shift 1 MCQ

If the lines $2x+y-3=0$, $3x+2y-2=0$, $kx-3y-23=0$ are concurrent, then the roots of the equation $6x^2-7x+k=0$ are

(A) $\frac{1}{2}, \frac{2}{3}$
(B) 2, 3
(C) 3, 4
(D) 6, 2

Answer: (A) $\frac{1}{2}, \frac{2}{3}$ · The council's preliminary key

Q964 AP EAMCET 2017 · 25 Apr · Shift 1 MCQ

A straight line L is perpendicular to the line $5x - y = 1$ and the area of the triangle formed by the line L and the coordinate axes is 5 square units. The equation of the line L can be

(A) $x + 5y = \pm 2\sqrt{2}$
(B) $x + 5y = \pm 5\sqrt{2}$
(C) $x - 5y = 5\sqrt{2}$
(D) $-x + 5y = 3\sqrt{2}$

Answer: (B) $x + 5y = \pm 5\sqrt{2}$ · The council's preliminary key

Q965 AP EAMCET 2017 · 25 Apr · Shift 1 MCQ

The combined equation of the diagonals of the square formed by the two pairs of straight lines given by $xy + 4x - 3y - 12 = 0$ and $xy - 3x + 4y - 12 = 0$ is

(A) $x^2 - 2xy + y^2 + x - y = 0$
(B) $x^2 + 2xy + y^2 + x + y = 0$
(C) $x^2 - y^2 + x + y = 0$
(D) $x^2 - y^2 + x - y = 0$

Answer: (D) $x^2 - y^2 + x - y = 0$ · The council's preliminary key

Q966 AP EAMCET 2017 · 25 Apr · Shift 1 MCQ

If the pair of lines $2x^2 + 3xy + y^2 = 0$ makes angles θ_1 and θ_2 with the positive direction of the X-axis, then $|\tan(\theta_1 - \theta_2)| =$

(A) 1
(B) $\frac{1}{3}$
(C) $\frac{1}{2}$
(D) $\frac{1}{4}$

Answer: (B) $\frac{1}{3}$ · The council's preliminary key

Q967 AP EAMCET 2017 · 25 Apr · Shift 1 MCQ

The pair of lines joining the origin to the points of intersection of the line $x - y = 2$ with the curve $5x^2 + 12xy - 8y^2 + 8x - 4y + 12 = 0$ are equally inclined to the pair of lines

(A) $x^2 - xy = 0$
(B) $xy = 0$
(C) $(x - 2)(y - 2) = 0$
(D) $xy - y^2 = 4$

Answer: (B) $xy = 0$ · The council's preliminary key

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Q968 AP EAMCET 2017 · 25 Apr · Shift 2 MCQ

If $A = (a, 0)$ and $B = (-a, 0)$, then the locus of a point P such that $PA^2 - PB^2 = a^2$ is.

(A) a circle
(B) an ellipse
(C) a hyperbola
(D) a straight line

Answer: (D) a straight line · The council's preliminary key

Q969 AP EAMCET 2017 · 25 Apr · Shift 2 MCQ

The angle through which the coordinate axes are to be rotated to remove the xy term in the equation $x^2 + 2xy - y^2 = 0$ is

(A) $\frac{\pi}{4}$
(B) $\frac{\pi}{3}$
(C) $\frac{\pi}{8}$
(D) $\frac{\pi}{6}$

Answer: (C) $\frac{\pi}{8}$ · The council's preliminary key

Q970 AP EAMCET 2017 · 25 Apr · Shift 2 MCQ

The point $P(a, b)$ lies on the straight line $3x + 2y = 13$ and the point $Q(b, a)$ lies on the straight line $4x - y = 5$. Then the equation of the line PQ is

(A) $x + y = 7$
(B) $x + y = 5$
(C) $x + y = 2$
(D) $x + y = 21$

Answer: (B) $x + y = 5$ · The council's preliminary key

Q971 AP EAMCET 2017 · 25 Apr · Shift 2 MCQ

If three non-zero real numbers a, b, c are in harmonic progression, then the straight lines $\frac{x}{a} + \frac{y}{b} - \frac{2}{c} = 0$ are concurrent at the point

(A) $(1, -2)$
(B) $(-2, 4)$
(C) $(4, -2)$
(D) $(-2, -4)$

Answer: (B) $(-2, 4)$ · The council's preliminary key

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Q972 AP EAMCET 2017 · 25 Apr · Shift 2 MCQ

The incentre of the triangle with vertices $A(1, \sqrt{3})$, $B(0, 0)$ and $C(2, 0)$ is

(A) $\left(1, \frac{\sqrt{3}}{2}\right)$
(B) $\left(\frac{2}{3}, \frac{1}{\sqrt{3}}\right)$
(C) $\left(\frac{2}{3}, \frac{\sqrt{3}}{2}\right)$
(D) $\left(1, \frac{1}{\sqrt{3}}\right)$

Answer: (D) $\left(1, \frac{1}{\sqrt{3}}\right)$ · The council's preliminary key

Q973 AP EAMCET 2017 · 25 Apr · Shift 2 MCQ

The distance between the lines represented by $x^2 + 2xy + y^2 - 8mx - 8my - 9m^2 = 0$ is

(A) $2\sqrt{5}\,m$
(B) 0
(C) $\frac{5m}{\sqrt{2}}$
(D) $5\sqrt{2}\,m$

Answer: (D) $5\sqrt{2}\,m$ · The council's preliminary key

Q974 AP EAMCET 2017 · 25 Apr · Shift 2 MCQ

If $\frac{x^2}{a} + \frac{2xy}{h} + \frac{y^2}{b} = 0$ represents a pair of straight lines such that the slope of one of the lines is twice the other, then $\frac{ab}{h^2} =$

(A) $\frac{9}{8}$
(B) $\frac{8}{9}$
(C) $\frac{2\sqrt{2}}{3}$
(D) $\frac{3}{2\sqrt{2}}$

Answer: (A) $\frac{9}{8}$ · The council's preliminary key

Q975 AP EAMCET 2017 · 25 Apr · Shift 2 MCQ

The three sides of a triangle are given by $(x^2 + 7xy + 2y^2)(y - 1) = 0$. Then the centroid of that triangle is

(A) $\left(\frac{2}{3}, 0\right)$
(B) $\left(\frac{7}{3}, \frac{2}{3}\right)$
(C) $\left(\frac{-7}{3}, \frac{2}{3}\right)$
(D) $\left(\frac{1}{3}, \frac{4}{3}\right)$

Answer: (C) $\left(\frac{-7}{3}, \frac{2}{3}\right)$ · The council's preliminary key

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Q976 AP EAMCET 2017 · 24 Apr · Shift 1 MCQ

A(2, 3), B(3, -5) are two vertices of ΔABC. If the centroid of the ΔABC moves on the line $2x + y - 2 = 0$, then the locus of C is

(A) $x + 2y + 2 = 0$
(B) $2x + y + 2 = 0$
(C) $2x + y - 2 = 0$
(D) $3x + y + 2 = 0$

Answer: (B) $2x + y + 2 = 0$ · The council's preliminary key

Q977 AP EAMCET 2017 · 24 Apr · Shift 1 MCQ

Let A = (2, 0) and B = (6, 4) be two points. If $\overline{AB}$ is rotated about A through an angle of 45° in the negative direction, then the co-ordinates of B after the rotation are

(A) $(2 + 4\sqrt{2}, 0)$
(B) $(2, 4\sqrt{2})$
(C) $(0, 4\sqrt{2})$
(D) $(4\sqrt{2}, 0)$

Answer: (A) $(2 + 4\sqrt{2}, 0)$ · The council's preliminary key

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Q978 AP EAMCET 2017 · 24 Apr · Shift 1 MCQ

If a straight line passing through the point P(3, 4) makes an angle $\frac{\pi}{6}$ with the X-axis and meets the line $12x + 5y + 10 = 0$ at Q, then the length of PQ is

(A) $\frac{132}{12\sqrt{3}+5}$
(B) $\frac{166}{8\sqrt{3}+6}$
(C) $\frac{182}{6\sqrt{3}+4}$
(D) $\frac{192}{14\sqrt{3}+6}$

Answer: (A) $\frac{132}{12\sqrt{3}+5}$ · The council's preliminary key

Q979 AP EAMCET 2017 · 24 Apr · Shift 1 MCQ

A(3, -4) is a vertex of ΔABC and $3x + 4y - 18 = 0$ is the perpendicular bisector of the side AB. If C= (6, 3) then the centroid of the triangle is

(A) $(6, 1)$
(B) $(-6, 1)$
(C) $(-6, -1)$
(D) $(6, -1)$

Answer: (A) $(6, 1)$ · The council's preliminary key

Q980 AP EAMCET 2017 · 24 Apr · Shift 1 MCQ

If p and q are the lengths of the perpendiculars from the origin to the straight lines $x \sec\alpha + y \operatorname{cosec}\alpha = 10$ and $x\cos\alpha - y\sin\alpha = 10\cos 2\alpha$, then $4p^2 + q^2 =$

(A) 10
(B) 20
(C) 40
(D) 100

Answer: (D) 100 · The council's preliminary key

Q981 AP EAMCET 2017 · 24 Apr · Shift 1 MCQ

If P is the set of all real numbers α such that the product of the lengths of perpendiculars from $(\alpha, 1)$ to the pair of straight lines $3x^2 + 7xy + 2y^2 = 0$ is $\frac{\sqrt{2}}{5}$ then the sum of the elements in P is

(A) $-\frac{11}{3}$
(B) $-\frac{14}{3}$
(C) $\frac{11}{3}$
(D) $\frac{14}{3}$

Answer: (B) $-\frac{14}{3}$ · The council's preliminary key

Q982 AP EAMCET 2017 · 24 Apr · Shift 1 MCQ

If two of the lines represented by $2x^3 + x^2y + y^3 = 0$ are mutually perpendicular, then the slope of the third line is

(A) 2
(B) 1
(C) 0
(D) $\frac{1}{2}$

Answer: (A) 2 · The council's preliminary key

Q983 AP EAMCET 2017 · 24 Apr · Shift 1 MCQ

The orthocentre of the triangle formed by the lines $2x^2 - 3xy + y^2 = 0,\ x + y = 1$ is

(A) $\left(\frac{1}{4}, \frac{1}{4}\right)$
(B) $\left(\frac{1}{3}, \frac{1}{3}\right)$
(C) $\left(\frac{1}{2}, \frac{1}{2}\right)$
(D) $(1, 1)$

Answer: (C) $\left(\frac{1}{2}, \frac{1}{2}\right)$ · The council's preliminary key

Q984 AP EAMCET 2017 · 24 Apr · Shift 2 MCQ

The locus of the point P such that the area of the ΔPAB is 7, where $A(4, 5)$ and $B(-2, 3)$ are given points, is

(A) a straight line
(B) a pair of parallel lines
(C) a circle
(D) an ellipse

Answer: (B) a pair of parallel lines · The council's preliminary key

Q985 AP EAMCET 2017 · 24 Apr · Shift 2 MCQ

If the point $P(4, 1)$ undergoes a reflection in the line $x - y = 0$, then a translation through a distance of 2 units along the positive X-axis and finally projected on the X-axis, then the coordinates of P in the final position, is

(A) $(3, 4)$
(B) $(3, 0)$
(C) $(1, 0)$
(D) $(4, 3)$

Answer: (B) $(3, 0)$ · The council's preliminary key

Q986 AP EAMCET 2017 · 24 Apr · Shift 2 MCQ

A straight line L cuts both the lines $5x - y - 4 = 0$ and $3x + 4y - 4 = 0$. The segment of L between the two lines is bisected at the point $(1, 5)$. The equation of L is

(A) $63x - 32y + 62 = 0$
(B) $36x - 53y - 72 = 0$
(C) $38x - 65y - 45 = 0$
(D) $83x - 35y + 92 = 0$

Answer: (D) $83x - 35y + 92 = 0$ · The council's preliminary key

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Q987 AP EAMCET 2017 · 24 Apr · Shift 2 MCQ

If the line $(2x+3y+4)+\lambda(6x-y+12)=0$ is perpendicular to the line $7x+5y=2$, then $\lambda=$

(A) $\frac{-27}{39}$
(B) $\frac{-29}{37}$
(C) $\frac{-27}{37}$
(D) $\frac{-28}{37}$

Answer: (B) $\frac{-29}{37}$ · The council's preliminary key

Q988 AP EAMCET 2017 · 24 Apr · Shift 2 MCQ

If $P(-1,0)$, $Q(0,0)$ and $R(3,3\sqrt{3})$ are three points, then the equation of the bisector of the $\underline{|PQR}$ is

(A) $x+\sqrt{3}y=0$
(B) $\sqrt{3}x+y=0$
(C) $x+\frac{\sqrt{3}}{2}y=0$
(D) $\frac{\sqrt{3}}{2}x+y=0$

Answer: (B) $\sqrt{3}x+y=0$ · The council's preliminary key

Q989 AP EAMCET 2017 · 24 Apr · Shift 2 MCQ

The product of the perpendicular distances drawn from the origin to the pair of straight lines $6x^2-5xy-6y^2+x+5y-1=0$ is

(A) 1
(B) $\frac{1}{12}$
(C) $\frac{1}{13}$
(D) 13

Answer: (C) $\frac{1}{13}$ · The council's preliminary key

Q990 AP EAMCET 2017 · 24 Apr · Shift 2 MCQ

If the slope of one of the lines represented by $2x^2+3xy+ky^2=0$ is 2, then the angle between the pair of lines is

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(A) $\frac{\pi}{2}$
(B) $\frac{\pi}{3}$
(C) $\frac{\pi}{6}$
(D) $\frac{\pi}{4}$

Answer: (A) $\frac{\pi}{2}$ · The council's preliminary key

Q991 AP EAMCET 2017 · 24 Apr · Shift 2 MCQ

The angle between the lines joining the origin to the points of intersection of $x + 2y + 1 = 0$ and $2x^2 - 2xy + 3y^2 + 2x - y - 1 = 0$ is

(A) $\frac{\pi}{4}$
(B) $\frac{\pi}{3}$
(C) $\frac{\pi}{2}$
(D) $\frac{\pi}{6}$

Answer: (C) $\frac{\pi}{2}$ · The council's preliminary key

Q992 TS EAMCET 2016 · 15 May · Offline MCQ

If $A(5, -4)$ and $B(7, 6)$ are points in a plane, then the set of all points $P(x, y)$ in the plane such that $AP : PB = 2 : 3$ is

(A) a circle
(B) a hyperbola
(C) an ellipse
(D) a parabola

Answer: (A) a circle · Official TGCHE final key

Q993 TS EAMCET 2016 · 15 May · Offline MCQ

If the axes are rotated anticlockwise through an angle 90° then the equation $x^2 = 4ay$ is changed to the equation

(A) $y^2 = 4ax$
(B) $x^2 = -4ay$
(C) $y^2 = -4ax$
(D) $x^2 = 4ay$

Answer: (A) $y^2 = 4ax$ · Official TGCHE final key

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Q994 TS EAMCET 2016 · 15 May · Offline MCQ

The combined equation of the straight lines of the form $y = kx + 1$ (where k is an integer) such that the point of intersection of each with the line $3x + 4y = 9$ has an integer as its x-coordinate is

(A) $(y + x + 1)(y + 2x - 1) = 0$
(B) $(y + x - 1)(y + 2x + 1) = 0$
(C) $(y + x + 1)(y + 2x + 1) = 0$
(D) $(y + x - 1)(y + 2x - 1) = 0$

Answer: (D) $(y + x - 1)(y + 2x - 1) = 0$ · Official TGCHE final key

Q995 TS EAMCET 2016 · 15 May · Offline MCQ

A value of k such that the straight lines $y - 3kx + 4 = 0$ and $(2k - 1)x - (8k - 1)y - 6 = 0$ are perpendicular is

(A) $\frac{1}{6}$
(B) $-\frac{1}{6}$
(C) 1
(D) 0

Answer: (A) $\frac{1}{6}$ · Official TGCHE final key

Q996 TS EAMCET 2016 · 15 May · Offline MCQ

The length of the segment of the straight line passing through $(3, 3)$ and $(7, 6)$ cut off by the coordinate axes is

(A) $\frac{4}{5}$
(B) $\frac{5}{4}$
(C) $\frac{7}{4}$
(D) $\frac{4}{7}$

Answer: (B) $\frac{5}{4}$ · Official TGCHE final key

Q997 TS EAMCET 2016 · 15 May · Offline MCQ

The equation of the pair of straight lines through the point $(1, 1)$ and perpendicular to the pair of straight lines $3x^2 - 8xy + 5y^2 = 0$ is

(A) $5x^2 + 8xy + 3y^2 - 14x - 18y + 16 = 0$
(B) $5x^2 + 8xy + 3y^2 - 18x - 14y + 16 = 0$
(C) $5x^2 - 8xy + 3y^2 - 18x - 14y + 32 = 0$
(D) $5x^2 - 8xy + 3y^2 - 14x - 18y + 32 = 0$

Answer: (B) $5x^2 + 8xy + 3y^2 - 18x - 14y + 16 = 0$ · Official TGCHE final key

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Q998 TS EAMCET 2016 · 15 May · Offline MCQ

The combined equation of the three sides of a triangle is $(x^2 - y^2)(2x + 3y - 6) = 0$. If the point $(0, \alpha)$ lies in the interior of this triangle then

(A) $-2 < \alpha < 0$
(B) $-2 < \alpha < 2$
(C) $0 < \alpha < 2$
(D) $\alpha \geq 2$

Answer: (C) $0 < \alpha < 2$ · Official TGCHE final key

Q999 AP EAMCET 2016 · 29 Apr · Offline MCQ

Equation of the locus of the centroid of the triangle whose vertices are $(a\cos k, a\sin k)$, $(b\sin k, -b\cos k)$ and $(1, 0)$, where k is a parameter, is

(A) $(1 - 3x)^2 + 9y^2 = a^2 + b^2$
(B) $(3x - 1)^2 + 9y^2 = 2a^2 + 2b^2$
(C) $(3x + 1)^2 + (3y)^2 = a^2 + b^2$
(D) $(3x + 1)^2 + (3y)^2 = 3a^2 + 3b^2$

Answer: (A) $(1 - 3x)^2 + 9y^2 = a^2 + b^2$ · The council's preliminary key

Q1000 AP EAMCET 2016 · 29 Apr · Offline MCQ

If the coordinate axes are rotated through an angle $\frac{\pi}{6}$ about the origin, then the transformed equation of $\sqrt{3}x^2 - 4xy + \sqrt{3}y^2 = 0$ is

(A) $\sqrt{3}y^2 + xy = 0$
(B) $x^2 - y^2 = 0$
(C) $\sqrt{3}y^2 - xy = 0$
(D) $\sqrt{3}y^2 - 2xy = 0$

Answer: (C) $\sqrt{3}y^2 - xy = 0$ · The council's preliminary key

Q1001 AP EAMCET 2016 · 29 Apr · Offline MCQ

If the lines $x + 3y - 9 = 0$, $4x + by - 2 = 0$, and $2x - y - 4 = 0$ are concurrent, then the equation of the line passing through the point $(b, 0)$ and concurrent with the given lines, is

(A) $2x + y + 10 = 0$
(B) $4x - 7y + 20 = 0$
(C) $x - y + 5 = 0$
(D) $x - 4y + 5 = 0$

Answer: (D) $x - 4y + 5 = 0$ · The council's preliminary key

Q1002 AP EAMCET 2016 · 29 Apr · Offline MCQ

The midpoint of the line segment joining the centroid and the orthocentre of the triangle whose vertices are (a, b), (a, c) and (d, c), is

(A) $\left(\frac{5a+d}{6}, \frac{b+5c}{6}\right)$
(B) $\left(\frac{a+5d}{6}, \frac{5b+c}{6}\right)$
(C) (a, c)
(D) $(0, 0)$

Answer: (A) $\left(\frac{5a+d}{6}, \frac{b+5c}{6}\right)$ · The council's preliminary key

Q1003 AP EAMCET 2016 · 29 Apr · Offline MCQ

The distance from the origin to the image of $(1, 1)$ with respect to the line $x + y + 5 = 0$ is

(A) $7\sqrt{2}$
(B) $3\sqrt{2}$
(C) $6\sqrt{2}$
(D) $4\sqrt{2}$

Answer: (C) $6\sqrt{2}$ · The council's preliminary key

Q1004 AP EAMCET 2016 · 29 Apr · Offline MCQ

The equation of the pair of lines joining the origin to the points of intersection of $x^2 + y^2 = 9$ and $x + y = 3$, is

(A) $x^2 + (3 - y)^2 = 9$
(B) $(3 + y)^2 + y^2 = 9$
(C) $x^2 - y^2 = 9$
(D) $xy = 0$

Answer: (D) $xy = 0$ · The council's preliminary key

Q1005 AP EAMCET 2016 · 29 Apr · Offline MCQ

The orthocentre of the triangle formed by the lines $x + y = 1$ and $2y^2 - xy - 6x^2 = 0$ is

(A) $\left(\frac{4}{3}, \frac{4}{3}\right)$
(B) $\left(\frac{2}{3}, \frac{2}{3}\right)$
(C) $\left(\frac{2}{3}, \frac{-2}{3}\right)$
(D) $\left(\frac{4}{3}, \frac{-4}{3}\right)$

Answer: (A) $\left(\frac{4}{3}, \frac{4}{3}\right)$ · The council's preliminary key

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Q1006 AP EAMCET 2016 · 29 Apr · Offline MCQ

Let L be the line joining the origin to the point of intersection of the lines represented by $2x^2 - 3xy - 2y^2 + 10x + 5y = 0$. If L is perpendicular to the line $kx + y + 3 = 0$, then $k =$

(A) $\frac{1}{2}$
(B) $\frac{-1}{2}$
(C) -1
(D) $\frac{1}{3}$

Answer: (B) $\frac{-1}{2}$ · The council's preliminary key

Q1007 AP EAMCET 2014 · 22 May · Offline MCQ

The equation of a straight line, perpendicular to $3x - 4y = 6$ and forming a triangle of area 6 square units with coordinate axes, is

(A) $x - 2y = 6$
(B) $4x + 3y = 12$
(C) $4x + 3y + 24 = 0$
(D) $3x + 4y = 12$

Answer: (B) $4x + 3y = 12$ · The council's preliminary key

Q1008 AP EAMCET 2014 · 22 May · Offline MCQ

If the image of $\left(\frac{-7}{5}, \frac{-6}{5}\right)$ in a line is $(1, 2)$, then the equation of the line is

(A) $4x + 3y = 1$
(B) $3x - y = 0$
(C) $4x - y = 0$
(D) $3x + 4y = 1$

Answer: (D) $3x + 4y = 1$ · The council's preliminary key

Q1009 AP EAMCET 2014 · 22 May · Offline MCQ

If a line l passes through $(k, 2k)$, $(3k, 3k)$ and $(3, 1)$, $k \neq 0$, then the distance from the origin to the line l is

(A) $\frac{1}{\sqrt{5}}$
(B) $\frac{4}{\sqrt{5}}$
(C) $\frac{3}{\sqrt{5}}$
(D) $\frac{2}{\sqrt{5}}$

Answer: (A) $\frac{1}{\sqrt{5}}$ · The council's preliminary key

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Q1010 AP EAMCET 2014 · 22 May · Offline MCQ

The area (in square units) of the triangle formed by the lines $x^2 - 3xy + y^2 = 0$ and $x + y + 1 = 0$

(A) $\frac{2}{\sqrt{3}}$
(B) $\frac{\sqrt{3}}{2}$
(C) $5\sqrt{2}$
(D) $\frac{1}{2\sqrt{5}}$

Answer: (D) $\frac{1}{2\sqrt{5}}$ · The council's preliminary key

Q1011 AP EAMCET 2014 · 22 May · Offline MCQ

If $x^2 + \alpha y^2 + 2\beta y = a^2$ represents a pair of perpendicular lines, then $\beta =$

(A) $4a$
(B) a
(C) $2a$
(D) $3a$

Answer: (B) a · The council's preliminary key

Q1012 AP EAMCET 2014 · 22 May · Offline MCQ

The point $P(1, 3)$ undergoes the following transformations successively :
(i) Reflection with respect to the line $y = x$
(ii) Translation through 3 units along the positive direction of the X-axis
(iii) Rotation through an angle of $\frac{\pi}{6}$ about the origin in the clockwise direction.
The final position of the point P is

(A) $\left(\frac{6\sqrt{3}+1}{2}, \frac{\sqrt{3}-6}{2}\right)$
(B) $\left(\frac{7}{\sqrt{2}}, \frac{-5}{\sqrt{2}}\right)$
(C) $\left(\frac{6+\sqrt{3}}{2}, \frac{1-6\sqrt{3}}{2}\right)$
(D) $\left(\frac{6\sqrt{3}-1}{2}, \frac{6+\sqrt{3}}{2}\right)$

Answer: (A) $\left(\frac{6\sqrt{3}+1}{2}, \frac{\sqrt{3}-6}{2}\right)$ · The council's preliminary key

Q1013 AP EAMCET 2014 · 22 May · Offline MCQ

The locus of the centroid of the triangle with vertices at $(a\cos\theta, a\sin\theta)$, $(b\sin\theta, -b\cos\theta)$ and $(1, 0)$ is (Here θ is a parameter)

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(A) $(3x+1)^2+9y^2=a^2+b^2$
(B) $(3x-1)^2+9y^2=a^2-b^2$
(C) $(3x-1)^2+9y^2=a^2+b^2$
(D) $(3x+1)^2+9y^2=a^2-b^2$

Answer: (C) $(3x-1)^2+9y^2=a^2+b^2$ · The council's preliminary key

Q1014 AP EAMCET 2013 · 10 May · Offline MCQ

The origin is translated to $(1,2)$. The point $(7,5)$ in the old system undergoes the following transformations successively.
(i) Moves to the new point under the given translation of origin.
(ii) Translated through 2 units along the negative direction of the new X-axis.
(iii) Rotated through an angle $\frac{\pi}{4}$ about the origin of new system in the clockwise direction.
The final position of the point $(7,5)$ is

(A) $\left(\frac{9}{\sqrt{2}},\frac{-1}{\sqrt{2}}\right)$
(B) $\left(\frac{7}{\sqrt{2}},\frac{1}{\sqrt{2}}\right)$
(C) $\left(\frac{7}{\sqrt{2}},\frac{-1}{\sqrt{2}}\right)$
(D) $\left(\frac{5}{\sqrt{2}},\frac{-1}{\sqrt{2}}\right)$

Answer: (C) $\left(\frac{7}{\sqrt{2}},\frac{-1}{\sqrt{2}}\right)$ · The council's preliminary key

Q1015 AP EAMCET 2013 · 10 May · Offline MCQ

If p and q are the perpendicular distances from the origin to the straight lines $x\sec\theta-y\csc\theta=a$ and $x\cos\theta+y\sin\theta=a\cos 2\theta$, then

(A) $4p^2+q^2=a^2$
(B) $p^2+q^2=a^2$
(C) $p^2+2q^2=a^2$
(D) $4p^2+q^2=2a^2$

Answer: (A) $4p^2+q^2=a^2$ · The council's preliminary key

Q1016 AP EAMCET 2013 · 10 May · Offline MCQ

If $2x+3y=5$ is the perpendicular bisector of the line segment joining the points $A\left(1,\frac{1}{3}\right)$ and B, then $B=$

(A) $\left(\frac{21}{13}, \frac{49}{39}\right)$
(B) $\left(\frac{17}{13}, \frac{31}{39}\right)$
(C) $\left(\frac{7}{13}, \frac{49}{39}\right)$
(D) $\left(\frac{21}{13}, \frac{31}{39}\right)$

Answer: (A) $\left(\frac{21}{13}, \frac{49}{39}\right)$ · The council's preliminary key

Q1017 AP EAMCET 2013 · 10 May · Offline MCQ

If the points $(1, 2)$ and $(3, 4)$ lie on the same side of the straight line $3x - 5y + a = 0$ then a lies in the set

(A) $[7, 11]$
(B) $\mathbb{R} - [7, 11]$
(C) $[7, \infty)$
(D) $(-\infty, 11]$

Answer: (B) $\mathbb{R} - [7, 11]$ · The council's preliminary key

Q1018 AP EAMCET 2013 · 10 May · Offline MCQ

The equation of the pair of lines passing through the origin whose sum and product of slopes are respectively the arithmetic mean and geometric mean of 4 and 9 is

(A) $12x^2 - 13xy + 2y^2 = 0$
(B) $12x^2 + 13xy + 2y^2 = 0$
(C) $12x^2 - 15xy + 2y^2 = 0$
(D) $12x^2 + 15xy - 2y^2 = 0$

Answer: (A) $12x^2 - 13xy + 2y^2 = 0$ · The council's preliminary key

Q1019 AP EAMCET 2013 · 10 May · Offline MCQ

The equation $x^2 - 5xy + py^2 + 3x - 8y + 2 = 0$ represents a pair of straight lines. If θ is the angle between them, then $\sin\theta =$

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(A) $\frac{1}{\sqrt{50}}$
(B) $\frac{1}{7}$
(C) $\frac{1}{5}$
(D) $\frac{1}{\sqrt{10}}$

Answer: (A) $\frac{1}{\sqrt{50}}$ · The council's preliminary key

Q1020 AP EAMCET 2013 · 10 May · Offline MCQ

If the equation $ax^2 + 2hxy + by^2 + 2gx + 2fy + c = 0$ represents a pair of straight lines, then the square of the distance of their point of intersection from the origin is

(A) $\frac{c(a+b) - af^2 - bg^2}{ab - h^2}$
(B) $\frac{c(a+b) + f^2 + g^2}{ab - h^2}$
(C) $\frac{c(a+b) - f^2 - g^2}{ab - h^2}$
(D) $\frac{c(a+b) - f^2 - g^2}{(ab - h^2)^2}$

Answer: (C) $\frac{c(a+b) - f^2 - g^2}{ab - h^2}$ · The council's preliminary key

Q1021 AP EAMCET 2013 · 10 May · Offline MCQ

The perpendicular distance from the point $(1, \pi)$ to the line joining $(1, 0^\circ)$ and $\left(1, \frac{\pi}{2}\right)$, (in polar coordinates) is

(A) 2
(B) $\sqrt{3}$
(C) 1
(D) $\sqrt{2}$

Answer: (D) $\sqrt{2}$ · The council's preliminary key

Q1022 AP EAMCET 2012 · 12 May · Offline MCQ

The point (3, 2) undergoes the following three transformations in the order given
(i) Reflection about the line $y = x$
(ii) Translation by the distance 1 unit in the positive direction of x-axis
(iii) Rotation by an angle $\frac{\pi}{4}$ about the origin in the anticlockwise direction.
Then the final position of the point is :

(A) $(-\sqrt{18}, \sqrt{18})$
(B) $(-2, 3)$
(C) $(0, \sqrt{18})$
(D) $(0, 3)$

Answer: (C) $(0, \sqrt{18})$ · Official APSCHE final key

Q1023 AP EAMCET 2012 · 12 May · Offline MCQ

The equation of a straight line passing through the point (1, 2) and inclined at 45° to the line $y = 2x + 1$ is

(A) $5x + y = 7$
(B) $3x + y = 5$
(C) $x + y = 3$
(D) $x - y + 1 = 0$

Answer: (B) $3x + y = 5$ · Official APSCHE final key

Q1024 AP EAMCET 2012 · 12 May · Offline MCQ

A point moves in the xy-plane such that the sum of its distances from two mutually perpendicular lines is always equal to 5 units. The area (in square units) enclosed by the locus of the point is

(A) $\frac{25}{4}$
(B) 25
(C) 50
(D) 100

Answer: (C) 50 · Official APSCHE final key

Q1025 AP EAMCET 2012 · 12 May · Offline MCQ

The distance between the parallel lines given by $(x + 7y)^2 + 4\sqrt{2}(x + 7y) - 42 = 0$ is

(A) $\frac{4}{5}$
(B) $4\sqrt{2}$
(C) 2
(D) $10\sqrt{2}$

Answer: (C) 2 · Official APSCHE final key

Q1026 AP EAMCET 2012 · 12 May · Offline MCQ

If the area of the triangle formed by the pair of lines $8x^2 - 6xy + y^2 = 0$ and the line $2x + 3y = a$ is 7 then a =

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(A) 14
(B) $14\sqrt{2}$
(C) $28\sqrt{2}$
(D) 28

Answer: (D) 28 · Official APSCHE final key

Q1027 AP EAMCET 2012 · 12 May · Offline MCQ

If the pair of lines given by $(x^2+y^2)\cos^2\theta = (x\cos\theta + y\sin\theta)^2$ are perpendicular to each other, then $\theta =$

(A) 0
(B) $\frac{\pi}{4}$
(C) $\frac{\pi}{3}$
(D) $\frac{3\pi}{4}$

Options (2) or (4) were accepted. More than one answer was accepted. · Official APSCHE final key

Q1028 AP EAMCET 2012 · 12 May · Offline MCQ

The radius of the circle $r = 12\cos\theta + 5\sin\theta$ is

(A) $\frac{5}{12}$
(B) $\frac{17}{2}$
(C) $\frac{15}{2}$
(D) $\frac{13}{2}$

Answer: (D) $\frac{13}{2}$ · Official APSCHE final key

Q1029 AP EAMCET 2011 · 8 May · Offline MCQ

The number of points $P(x, y)$ with natural numbers as coordinates that lie inside the quadrilateral formed by the lines $2x + y = 2$, $x = 0$, $y = 0$ and $x + y = 5$ is

(A) 12
(B) 10
(C) 6
(D) 4

Answer: (C) 6 · The council's preliminary key

Q1030 AP EAMCET 2011 · 8 May · Offline MCQ

The image of the point $(3, 8)$ in the line $x + 3y = 7$ is

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(A) $(1, 4)$
(B) $(4, 1)$
(C) $(-1, -4)$
(D) $(-4, -1)$

Answer: (C) $(-1, -4)$ · The council's preliminary key

Q1031 AP EAMCET 2011 · 8 May · Offline MCQ

The line joining the points $A(2, 0)$ and $B(3, 1)$ is rotated through an angle of 45°, about A in the anticlockwise direction. The coordinates of B in the new position

(A) $(2, \sqrt{2})$
(B) $(\sqrt{2}, 2)$
(C) $(2, 2)$
(D) $(\sqrt{2}, \sqrt{2})$

Answer: (A) $(2, \sqrt{2})$ · The council's preliminary key

Q1032 AP EAMCET 2011 · 8 May · Offline MCQ

If one of the lines in the pair of straight lines given by $4x^2 + 6xy + ky^2 = 0$ bisects the angle between the coordinate axes, then $k \in$

(A) $\{-2, -10\}$
(B) $\{-2, 10\}$
(C) $\{-10, 2\}$
(D) $\{2, 10\}$

Answer: (C) $\{-10, 2\}$ · The council's preliminary key

Q1033 AP EAMCET 2011 · 8 May · Offline MCQ

If $ax^2 + 2hxy + by^2 + 2gx + 2fy + c = 0$ represents a pair of parallel lines then $\sqrt{\frac{g^2 - ac}{f^2 - bc}} =$

(A) $\frac{a}{b}$
(B) $\sqrt{\frac{a}{b}}$
(C) $\sqrt{\frac{b}{a}}$
(D) $\frac{b}{a}$

Answer: (B) $\sqrt{\frac{a}{b}}$ · The council's preliminary key

Q1034 AP EAMCET 2011 · 8 May · Offline MCQ

If s and p are respectively the sum and the product of the slopes of the lines $3x^2 - 2xy - 15y^2 = 0$, then $s : p =$

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(A) $4:3$
(B) $2:3$
(C) $3:5$
(D) $3:4$

Answer: (B) $2:3$ · The council's preliminary key

Q1035 AP EAMCET 2011 · 8 May · Offline MCQ

A line segment $AM = a$ moves in the XOY plane such that AM is parallel to the X-axis. If A moves along the circle $x^2 + y^2 = a^2$, then the locus of M is

(A) $x^2 + y^2 = 4a^2$
(B) $x^2 + y^2 = 2ax$
(C) $x^2 + y^2 = 2ay$
(D) $x^2 + y^2 = 2ax + 2ay$

Answer: (B) $x^2 + y^2 = 2ax$ · The council's preliminary key

Q1036 AP EAMCET 2011 · 8 May · Offline MCQ

The polar equation of the line perpendicular to the line $\sin\theta - \cos\theta = \frac{1}{r}$ and passing through the point $\left(2, \frac{\pi}{6}\right)$ is

(A) $\sin\theta + \cos\theta = \frac{\sqrt{3}+1}{r}$
(B) $\sin\theta - \cos\theta = \frac{\sqrt{3}+1}{r}$
(C) $\sin\theta + \cos\theta = \frac{\sqrt{3}-1}{r}$
(D) $\cos\theta - \sin\theta = \frac{\sqrt{3}}{r}$

Answer: (A) $\sin\theta + \cos\theta = \frac{\sqrt{3}+1}{r}$ · The council's preliminary key

Q1037 AP EAMCET 2010 · 30 May · Offline MCQ

If a straight line L is perpendicular to the line $4x - 2y = 1$ and forms a triangle of area 4 square units with the coordinate axes, then an equation of the line L is :

(A) $2x + 4y + 7 = 0$
(B) $2x - 4y + 8 = 0$
(C) $2x + 4y + 8 = 0$
(D) $4x - 2y - 8 = 0$

Answer: (C) $2x + 4y + 8 = 0$ · Official APSCHE final key

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Q1038 AP EAMCET 2010 · 30 May · Offline MCQ

The image of the point $(4, -13)$ with respect to the line $5x + y + 6 = 0$ is :

(A) $(-1, -14)$
(B) $(3, 4)$
(C) $(1, 2)$
(D) $(-4, 13)$

Answer: (A) $(-1, -14)$ · Official APSCHE final key

Q1039 AP EAMCET 2010 · 30 May · Offline MCQ

The image of the line $x + y - 2 = 0$ in the Y-axis is :

(A) $x - y + 2 = 0$
(B) $y - x + 2 = 0$
(C) $x + y + 2 = 0$
(D) $x + y - 2 = 0$

Answer: (A) $x - y + 2 = 0$ · Official APSCHE final key

Q1040 AP EAMCET 2010 · 30 May · Offline MCQ

A straight line which makes equal intercepts on positive X and Y axes and which is at a distance 1 unit from the origin intersects the straight line $y = 2x + 3 + \sqrt{2}$ at (x_0, y_0). Then $2x_0 + y_0 =$

(A) $3 + \sqrt{2}$
(B) $\sqrt{2} - 1$
(C) 1
(D) 0

Answer: (B) $\sqrt{2} - 1$ · Official APSCHE final key

Q1041 AP EAMCET 2010 · 30 May · Offline MCQ

The distance between the straight lines represented by $8x^2 - 24xy + 18y^2 - 6x + 9y - 5 = 0$ is :

(A) 0
(B) $\frac{3}{4\sqrt{13}}$
(C) $\frac{6}{\sqrt{13}}$
(D) $\frac{7}{2\sqrt{13}}$

Answer: (D) $\frac{7}{2\sqrt{13}}$ · Official APSCHE final key

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Q1042 AP EAMCET 2010 · 30 May · Offline MCQ

A pair of perpendicular lines passes through the origin and also through the points of intersection of the curve $x^2 + y^2 = 4$ with $x + y = a$, where $a > 0$. Then $a =$

(A) 2
(B) 3
(C) 4
(D) 5

Answer: (A) 2 · Official APSCHE final key

Q1043 AP EAMCET 2010 · 30 May · Offline MCQ

If $3x^2 - 11xy + 10y^2 - 7x + 13y + k = 0$ denotes a pair of straight lines, then the point of intersection of the lines is :

(A) $(1, 3)$
(B) $(3, 1)$
(C) $(-3, 1)$
(D) $(1, -3)$

Answer: (B) $(3, 1)$ · Official APSCHE final key

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