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MATHEMATICS · EAPCET (EAMCET)

Parabola

Previous Year Questions with answers

249 questions · **149** papers · **2010–2026** · newest paper first

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What is in this PDF: every Parabola 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.

Step-by-step solutions for every question are free in the EdLoop EAPCET app (Google Play) and on app.edloop.in. More chapters: pyq.edloop.in/free-pdfs/

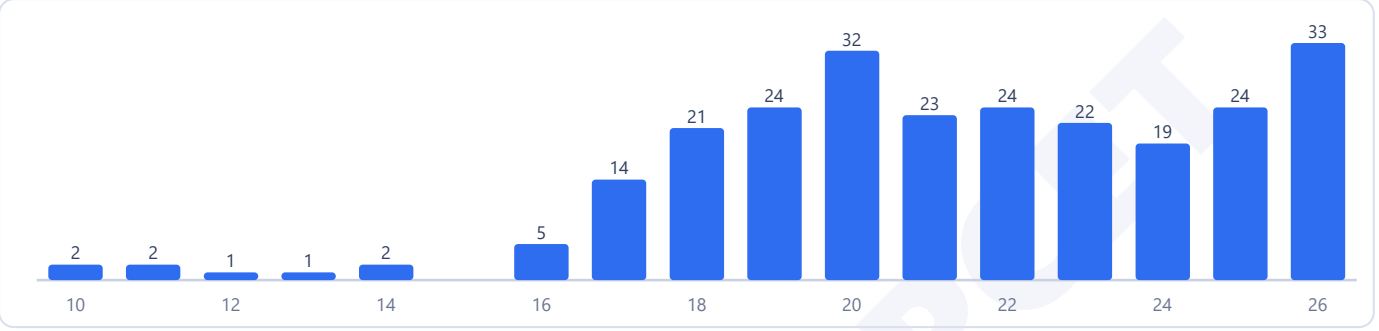
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Chapter at a glance

2%	249	77 of 77	249 / 0
of Mathematics questions, 2022–2026	questions, 2010–2026	papers asked it, 2022–2026	MCQ / numerical, 2010–2026

Trend. Steady: 1.7 questions per paper in 2024–2026 against 1.5 in 2022–2023.

Questions per year



Counts are the questions we hold: 249 in 149 papers. 9 questions in this chapter came back in more than one paper.

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

Tangents, Normals & Chords	150
Standard Forms	99

How often it comes up

Parabola serves as the primary foundational curve in conic sections with a dependable presence across every examination session. Over the expansive testing history from 2010 through 2026, Parabola supplied 249 questions across 149 evaluated exam papers, appearing in all 149 papers to record an average of 1.7 questions per paper and a 2.1 percent subject share. In contemporary testing from 2022 to 2026, the chapter sustained this total representation across all 77 sittings, delivering 122 questions (averaging 1.6 questions per paper and a 2.0 percent subject share). This places Parabola at rank 19 among the 29 mathematics chapters.

Every paper in recent testing includes at least one or two parabola problems. Across the three most recent testing years from 2024 to 2026, candidates answered 76 questions across 46 sittings (present in all 46 papers, averaging 1.7 questions per test and a 2.1 percent share). In the previous examination span from 2010 to 2021, the chapter contributed 127 questions across 72 sittings (appearing in all 72 papers, 1.8 per test, 2.2 percent share). Evaluating historical stability, comparing early testing with the last three years shows the share is about the same, and comparing recent testing with the last three years also shows the share is about the same. Across the two regional boards between 2022 and 2026, Andhra Pradesh administered 62 questions across 48 papers (all 48 papers, 1.3 per test, 1.6 percent share), while Telangana administered 60 questions across 29 papers (all 29 papers, 2.1 per test, 2.6 percent share).

Most-asked topics

Questions in this unit fall into two main coordinate geometry categories:

- **Tangents, Normals & Chords**: Delivering 150 total questions, with 80 appearing in recent testing (tested through 2026). Key concepts include equation of tangent in slope form (y equals m x plus a over m), parametric tangent (y t equals x plus a t squared), normal in slope form (y equals m x minus two a m minus a m cubed), parametric normal, focal chord properties (t one t two equals negative one), chord with given midpoint, and common tangents to a parabola and a circle or two parabolas.

- **Standard Forms**: Supplying 99 total questions, with 42 set in modern examinations (tested through 2026). Coverage encompasses standard equations (y squared equals four a x, x squared equals four a y, and shifted variants), focus, vertex, directrix, axis, latus rectum length, focal distance, and parametric representations.

What the questions look like

Examiners test focal chord relationships, common tangent lines, and co-normal points.

A very frequent problem presents a focal chord of a standard parabola and asks for its length or the coordinates of its midpoint. Candidates use the fundamental relation that if the endpoints of a focal chord have parametric values t one and t two, then t one times t two equals negative one. Another common format involves finding common tangents between a parabola and another conic section (such as a circle x squared plus y squared equals a squared); candidates write the parabola tangent in slope form and set the perpendicular distance from the circle center equal to the radius to solve for slope m. Questions on normals frequently ask for the condition that three distinct real normals can be drawn from an external point (h, k) to the parabola y squared equals four a x, which requires h to be strictly greater than two a.

How to practise it

Master standard parametric representations and their slopes. For the parabola y squared equals four a x, parametric point t has coordinates (a t squared, two a t). The tangent at point t is y t equals x plus a t squared with slope one over t. The normal at point t is y plus t x equals two a t plus a t cubed with slope negative t.

Memorize key focal chord properties: if chord PQ passes through the focus (a, zero), then parameter product t one times t two equals negative one, and the length of the focal chord is a times the square of t minus one over t, with minimum length equaling the latus rectum four a. If a normal at point t one intersects the parabola again at point t two, then t two equals negative t one minus two divided by t one. The locus of points from which mutually perpendicular tangents can be drawn to a parabola is its directrix x plus a equals zero.

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Q1 AP EAPCET 2026 · 18 May · Shift 1 MCQ

If $a \neq 0$ and the line $2bx + 3cy + 4d = 0$ passes through the points of intersection of the parabolas $y^2 = 4ax$ and $x^2 = 4ay$, then

(A) $d^2 + (2b - 3c)^2 = 0$
(B) $d^2 + (3b + 2c) = 0$
(C) $d^2 + (2b + 3c)^2 = 0$
(D) $d^2 + (3b - 2c) = 0$

Answer: (C) $d^2 + (2b + 3c)^2 = 0$ · The council's preliminary key

Q2 AP EAPCET 2026 · 18 May · Shift 1 MCQ

The normal drawn to the parabola $y^2 = 8x$ at $(2, 4)$ meets the parabola again at the point

(A) $(18, 12)$
(B) $(18, -12)$
(C) $(40.5, 18)$
(D) $(40.5, -18)$

Answer: (B) $(18, -12)$ · The council's preliminary key

Q3 AP EAPCET 2026 · 18 May · Shift 2 MCQ

Let S be the focus of the parabola $y^2 = 36x$ and let the line $x + by + c = 0$ intersect the parabola at the points Q and R. If the centroid of ΔQRS is $(57, 0)$, then $-c$ is

(A) an even number
(B) a prime number
(C) a perfect square
(D) a perfect cube

Answer: (C) a perfect square · The council's preliminary key

Q4 AP EAPCET 2026 · 18 May · Shift 2 MCQ

If a tangent drawn to the parabola $y^2 = 16x$ meets the curve $xy = 4$ at the points P and Q, then the locus of midpoint of PQ is

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

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

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Q5 AP EAPCET 2026 · 15 May · Shift 1 MCQ

Let $x+y=0$ be the equation of the latus rectum of a parabola. Let the axis of this parabola pass through the point $(1,1)$. If $x+y-2\sqrt{2}=0$ is the equation of the directrix of the parabola, then its vertex is

(A) $\left(\frac{1}{\sqrt{2}},\frac{1}{\sqrt{2}}\right)$
(B) $(\sqrt{2},\sqrt{2})$
(C) $(0,0)$
(D) $(2\sqrt{2},2\sqrt{2})$

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

Q6 AP EAPCET 2026 · 15 May · Shift 1 MCQ

If the tangent drawn from the point $P(5,3)$ to the parabola $y^2=x$ is at a distance of $\frac{1}{\sqrt{5}}$ units from the vertex of the parabola and touches the parabola at the point Q, then $PQ=$

(A) $2\sqrt{101}$
(B) $25\sqrt{2}$
(C) $2\sqrt{5}$
(D) $5\sqrt{2}$

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

Q7 AP EAPCET 2026 · 15 May · Shift 2 MCQ

If $y=mx+\frac{3}{m}$ is a tangent drawn to the parabola $y^2=4ax$ at the point P$(3,\beta)$ $(\beta<0)$, then $3m-\beta=$

(A) $2a$
(B) ma
(C) a
(D) $\frac{|\beta|}{a}$

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

Q8 AP EAPCET 2026 · 15 May · Shift 2 MCQ

The product of the slopes of the non-horizontal normals drawn through the point $(6,0)$ to the parabola $y^2=8x$ is

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

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

Q9 AP EAPCET 2026 · 14 May · Shift 1 MCQ

A chord is drawn through the focus of the parabola $y^2 = 6x$ such that its perpendicular distance from the vertex is $\frac{\sqrt{5}}{2}$. Then its slope can be

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

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

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Q10 AP EAPCET 2026 · 14 May · Shift 1 MCQ

A perpendicular is drawn through the vertex 'O' of the parabola $y^2 = 8x$ to any non-vertical tangent meeting it at P and the parabola at Q. Then $OP.OQ =$

(A) 16
(B) 12
(C) 6
(D) 24

Answer: (A) 16 · The council's preliminary key

Q11 AP EAPCET 2026 · 14 May · Shift 2 MCQ

PSQ is a focal chord of the parabola $y^2 = 12x$. A, B are respectively the feet of the perpendicular S drawn from P and Q on to the directrix of the parabola. If the length of AB is $7\sqrt{3}$ and $P = (3t^2, 6t)$ $(0 < t < 1)$, then $t =$

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

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

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Q12 AP EAPCET 2026 · 14 May · Shift 2 MCQ

Let O, S be the vertex and focus of the parabola $y^2 = 4ax$ respectively and $x = k$ be its double ordinate of length $2\sqrt{6}a$. If the line $x = k$ cuts the X $-$ $axis$ at P, then length of the double ordinate drawn through O to the parabola having P and S as vertex and focus is

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

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

Q13 AP EAPCET 2026 · 13 May · Shift 1 MCQ

If $y = mx + c$, $m > 0$ is a common tangent to the parabolas $y^2 = 8x$ and $y^2 = 1 + 4x$, then $m + c =$

(A) $\frac{\sqrt{5}}{2} + \frac{9}{2\sqrt{5}}$
(B) 5
(C) $\frac{\sqrt{5}}{8} + \frac{2}{\sqrt{5}}$
(D) 3

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

Q14 AP EAPCET 2026 · 13 May · Shift 1 MCQ

Through the focus of the parabola $x^2 - 4x - 8y + 44 = 0$, if tangents are drawn to another parabola $y^2 = 20x$, then the sum of the Y – coordinates of the points of contact of these tangents is

(A) 20
(B) 8
(C) 14
(D) 32

Answer: (C) 14 · The council's preliminary key

Q15 AP EAPCET 2026 · 13 May · Shift 2 MCQ

If three normals are drawn to the parabola $y^2 = x$ from a point $(C, 0)$, then

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

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

Q16 AP EAPCET 2026 · 13 May · Shift 2 MCQ

The equation of the normal to the parabola $y^2 = 16x$ which is perpendicular to the line $2x - y + 5 = 0$ is

(A) $x + 2y + 9 = 0$
(B) $x + 2y - 9 = 0$
(C) $x + 2y + 16 = 0$
(D) $x + 2y - 16 = 0$

Answer: (B) $x + 2y - 9 = 0$ · The council's preliminary key

Q17 AP EAPCET 2026 · 12 May · Shift 1 MCQ

If (α, β) is the mid point of a focal chord of the parabola $x^2 = 20y$ whose slope is 1, then $3\alpha =$

(A) $\beta + 2$
(B) 4β
(C) $\beta + 4$
(D) 2β

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

Q18 AP EAPCET 2026 · 12 May · Shift 1 MCQ

A tangent L_1 with slope m drawn to the parabola $y^2 = 8x$ is perpendicular to the normal L_2 drawn to the parabola $y^2 = 12x$. If $m = 1$ and the point of intersection of L_1 and L_2 is (h, k), then $h + k =$

(A) 2
(B) 4
(C) 9
(D) 6

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

Q19 AP EAPCET 2026 · 12 May · Shift 2 MCQ

A chord of the parabola $y = x^2 + 3x + 2$, among the following is

(A) $8x - 4y + 7 = 0$
(B) $x + y + 2 = 0$
(C) $x - y + 1 = 0$
(D) $x - y + 2 = 0$

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

Q20 AP EAPCET 2026 · 12 May · Shift 2 MCQ

If $y = mx + c\ (m > 0)$ is a common tangent to the parabola $y^2 = 12x$ and the circle $x^2 + y^2 = 36$, then $\frac{c^2}{m^2} =$

(A) $\frac{9}{3-2\sqrt{2}}$

(B) $36(3 + 2\sqrt{2})$

(C) $9(3 + 2\sqrt{2})$

(D) $\frac{36}{3+2\sqrt{2}}$

Answer: (B) $36(3 + 2\sqrt{2})$ · The council's preliminary key

Q21 TS EAPCET 2026 · 11 May · Shift 1 MCQ

The distance of a point $(1, 2)$ from the directrix of the parabola $y^2 - 4x - 4y + 8 = 0$ is

(A) 2

(B) 1

(C) 4

(D) 3

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

Q22 TS EAPCET 2026 · 11 May · Shift 1 MCQ

The X-intercept of one of the common tangents to the circle $3x^2 + 3y^2 = 169$ and the parabola $y^2 = 26x$ is

(A) $\frac{13}{2}$

(B) -13

(C) 13

(D) $-\frac{13}{2}$

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

Q23 TS EAPCET 2026 · 11 May · Shift 2 MCQ

$P \equiv y^2 + 2y - x + 6 = 0$ is a parabola. $S = 0$ is another parabola such that the axes of $S = 0$ and $P = 0$ are same and the distance between their foci is $\frac{5}{4}$. If the foci of these parabolas are on either side of the vertex of $S = 0$ and the vertex of $S = 0$ is on directrix of $P = 0$, then the length of latus rectum of $S = 0$ is

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(A) 1
(B) 3
(C) $\frac{18}{4}$
(D) 4

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

Q24 TS EAPCET 2026 · 11 May · Shift 2 MCQ

If a normal drawn at the point $t = 1$ on the parabola $x^2 + 4y + 2x - 8 = 0$ intersects the parabola again at a point $A(\alpha, \beta)$, then $4\alpha\beta =$

(A) 189
(B) -24
(C) 152
(D) -38

Answer: (A) 189 · The council's preliminary key

Q25 TS EAPCET 2026 · 10 May · Shift 1 MCQ

If the length of a focal chord drawn to the parabola $y^2 = 64x$ is 289 and the angle made by this focal chord with positive X-axis measured in positive direction is an acute angle then the slope of the focal chord is

(A) $\frac{2}{5}$
(B) $\frac{5}{2}$
(C) $\frac{15}{8}$
(D) $\frac{8}{15}$

Answer: (D) $\frac{8}{15}$ · The council's preliminary key

Q26 TS EAPCET 2026 · 10 May · Shift 1 MCQ

Let a tangent L_1 with slope m drawn to the parabola $y^2 = 8x$ be perpendicular to a normal L_2 drawn to the parabola $y^2 = 12x$. If $m = 1$ and the point of intersection of L_1 and L_2 is (α, β) then $\alpha + \beta =$

(A) 9
(B) 3
(C) 6
(D) 12

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

Q27 TS EAPCET 2026 · 10 May · Shift 2 MCQ

Let a normal drawn at a point P on the parabola $y^2 = 5x$ meet X-axis at the point Q. If PQ subtends an angle of 60° at the vertex A of this parabola, then the slope of the normal is

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

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

Q28 TS EAPCET 2026 · 10 May · Shift 2 MCQ

If the equation of the common tangent to the circle $x^2+y^2=4$ and parabola $y^2=8\sqrt{2}x$ is $y=mx+c, m>0$ then $\sqrt{m+c^2}=$

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

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

Q29 TS EAPCET 2026 · 9 May · Shift 1 MCQ

If a circle inscribed in the parabola $y^2=4ax$ $(a>0)$ passes through its focus, then the equation of that circle is

(A) $(x-5a)^2+y^2=16a^2$
(B) $(x-4a)^2+y^2=9a^2$
(C) $(x+7a)^2+y^2=64a^2$
(D) $(x+a)^2+y^2=4a^2$

Answer: (A) $(x-5a)^2+y^2=16a^2$ · The council's preliminary key

Q30 TS EAPCET 2026 · 9 May · Shift 1 MCQ

$y=4$ is the directrix of the parabola $x^2+8x+12y+k=0$. If l is the length of its latus rectum, then $l-k=$

(A) 4
(B) 8
(C) 12
(D) 6

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

Q31 TS EAPCET 2026 · 9 May · Shift 1 MCQ

$(1,1)$ is the focus of the parabola $y^2-4ax-2ay+a^2=0$. If the circles $(x-\alpha)^2+(y-\beta)^2=r^2$ (α,β are parameters) touch the X-axis and the axis of the given parabola, then $\{(\alpha,\beta)\,|\,\alpha,\beta\in\mathbb{R}\}$ is

(A) a line $y = \frac{1}{2}$

(B) a line $y = 1$

(C) a circle $x^2 + y^2 = \frac{1}{4}$

(D) a parabola $y^2 = 2x$

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

Q32 TS EAPCET 2026 · 9 May · Shift 2 MCQ

$P(t_1)$ and $Q(t_2)$ are two points on the parabola $y^2 = 7x$. If $t_1 = 2$ and $t_2 = -4$ then the length of the chord PQ is

(A) $21\sqrt{2}$

(B) $\frac{21\sqrt{5}}{4}$

(C) $\frac{21\sqrt{5}}{2}$

(D) $\frac{21\sqrt{2}}{2}$

Answer: (A) $21\sqrt{2}$ · The council's preliminary key

Q33 TS EAPCET 2026 · 9 May · Shift 2 MCQ

If a straight line $y = mx + c$ touches the circle $x^2 + y^2 = 4$ and the parabola $y^2 = 4x$, then $2m^2 =$

(A) $\sqrt{2} + 1$

(B) 2

(C) $\frac{1}{2}$

(D) $\sqrt{2} - 1$

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

Q34 AP EAPCET 2025 · 27 May · Shift 1 MCQ

A circle is drawn with its centre at the focus of the parabola $y^2 = 2px$ such that it touches the directrix of the parabola. Then a point of intersection of the circle and the parabola is

(A) $(2p, 2p)$

(B) $\left(\frac{p}{2}, -p\right)$

(C) $(2p, -2p)$

(D) $(p, \sqrt{2}p)$

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

Q35 AP EAPCET 2025 · 27 May · Shift 1 MCQ

If the locus of a point that divides a chord of slope 2 of the parabola $y^2 = 4x$ internally in the ratio $1 : 2$ is a parabola, then its vertex is

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(A) $\left(\frac{2}{9}, \frac{8}{9}\right)$
(B) $\left(\frac{1}{9}, \frac{3}{9}\right)$
(C) $\left(\frac{4}{9}, \frac{8}{9}\right)$
(D) $\left(\frac{2}{9}, \frac{4}{9}\right)$

Answer: (A) $\left(\frac{2}{9}, \frac{8}{9}\right)$ · The council's preliminary key

Q36 AP EAPCET 2025 · 26 May · Shift 1 MCQ

If $x - y - 3 = 0$ is a normal drawn through the point $(5, 2)$ to the parabola $y^2 = 4x$, then the slope of the other normal that can be drawn through the same point to the parabola $y^2 = 4x$ is

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

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

Q37 AP EAPCET 2025 · 26 May · Shift 2 MCQ

If the normal chord drawn at the point $\left(\frac{15}{2}, \frac{15}{\sqrt{2}}\right)$ to the parabola $y^2 = 15x$ subtends an angle θ at the vertex of the parabola, then $\sin\frac{\theta}{3} + \cos\frac{2\theta}{3} - \sec\frac{4\theta}{3} =$

(A) 0
(B) 3
(C) 1
(D) 2

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

Q38 AP EAPCET 2025 · 24 May · Shift 1 MCQ

Tangents are drawn at three points $P(t_1)$, $Q(t_2)$, $R(t_3)$ on the parabola $y^2 = x$. Let these tangents intersect each other at the points L, M, N. If $t_1 = 2$, $t_2 = -4$, $t_3 = 6$, then the area of the triangle LMN is

(A) 24
(B) 18.5
(C) 7.5
(D) 12

Answer: (C) 7.5 · The council's preliminary key

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Q39 AP EAPCET 2025 · 23 May · Shift 1 MCQ

The lengths of the two focal chords of the parabola $y^2 = 16x$ is 25 units each. If these two chords cut the parabola at A, B, C and D, then the area (in sq. units) of the quadrilateral formed by A, B, C and D is

(A) $\frac{625}{2}$
(B) 180
(C) 150
(D) 300

Answer: (D) 300 · The council's preliminary key

Q40 AP EAPCET 2025 · 23 May · Shift 2 MCQ

If the tangents of the parabola $y^2 = 8x$ passing through the point P(1, 3) touches the parabola at A and B, then the area (in sq. units) of ΔABC is

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

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

Q41 AP EAPCET 2025 · 22 May · Shift 1 MCQ

PQ is a focal chord of the parabola $y^2 = 4x$ with focus S. If $P = (4, 4)$ then $SQ =$

(A) 2
(B) $\frac{5}{4}$
(C) 5
(D) $\frac{3}{2}$

Answer: (B) $\frac{5}{4}$ · The council's preliminary key

Q42 AP EAPCET 2025 · 22 May · Shift 1 MCQ

If a tangent to the hyperbola $xy = -1$ is also a tangent to the parabola $y^2 = 8x$, then the equation of that tangent is

(A) $3y + x = 2$
(B) $y = 3x + 4$
(C) $y = x + 2$
(D) $y = 2x + 1$

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

Q43 AP EAPCET 2025 · 22 May · Shift 2 MCQ

If the perpendicular distance from the focus of a parabola $y^2 = 4ax$ to its directrix is $\frac{3}{2}$, then the equation of the normal drawn at $(4a, -4a)$ is

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

Answer: (B) $2x - y = 9$ · The council's preliminary key

Q44 AP EAPCET 2025 · 21 May · Shift 1 MCQ

If L is the normal drawn to the parabola $y^2 = 8x$ at the point $t = \frac{1}{\sqrt{2}}$, then the foot of the perpendicular drawn from the focus of the parabola on to the normal L is

(A) $(3, 2)$
(B) $(5, \sqrt{2})$
(C) $(0, \sqrt{2})$
(D) $(3, \sqrt{2})$

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

Q45 AP EAPCET 2025 · 21 May · Shift 2 MCQ

The angle between the tangents drawn from the point $(1, 4)$ to the parabola $y^2 = 4x$ is

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

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

Q46 TS EAPCET 2025 · 4 May · Shift 1 MCQ

A normal chord PQ drawn at a point P on the parabola $y^2 = 5x$ subtends a right angle at the vertex. If P lies in the first quadrant, then the other end Q of the normal chord is

(A) $\left(\frac{5}{4}, \frac{5}{2}\right)$
(B) $(5, -5)$
(C) $(10, -5\sqrt{2})$
(D) $\left(\frac{5}{2}, \frac{5\sqrt{2}}{2}\right)$

Answer: (C) $(10, -5\sqrt{2})$ · The council's preliminary key

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Q47 TS EAPCET 2025 · 4 May · Shift 1 MCQ

If $\mathrm{L}(p, q)$, $q > 3$ is one end of the latus rectum of the parabola $(y-2)^2 = 3(x-1)$ then the equation of the tangent at L to this parabola is

(A) $2x + y - 7 = 0$
(B) $4x - 4y + 7 = 0$
(C) $2x - y - 3 = 0$
(D) $2x - 3y + 7 = 0$

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

Q48 TS EAPCET 2025 · 4 May · Shift 2 MCQ

If the angle between the tangents drawn to the parabola $y^2 = 4x$ from the points on the line $4x - y = 0$ is $\frac{\pi}{3}$, then the sum of the abscissae of all such points is

(A) $\frac{5}{3}$
(B) $\frac{4}{7}$
(C) $\frac{2}{5}$
(D) $\frac{10}{13}$

Answer: (D) $\frac{10}{13}$ · The council's preliminary key

Q49 TS EAPCET 2025 · 4 May · Shift 2 MCQ

The normal at a point on the parabola $y^2 = 4x$ passes through a point P. Two more normals to this parabola also pass through P. If the centroid of the triangle formed by the feet of these three normals is G(2,0), then the abscissa of P is

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

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

Q50 TS EAPCET 2025 · 3 May · Shift 1 MCQ

If the normals drawn at the points $P\left(\frac{3}{4}, \frac{3}{2}\right)$ and $Q(3,3)$ on the parabola $y^2 = 3x$ intersect again on $y^2 = 3x$ at R, then R =

(A) $(12, 6)$
(B) $\left(\frac{27}{4}, -\frac{9}{2}\right)$
(C) $\left(\frac{3}{16}, \frac{3}{4}\right)$
(D) $\left(\frac{1}{12}, -\frac{1}{2}\right)$

Answer: (B) $\left(\frac{27}{4}, -\frac{9}{2}\right)$ · The council's preliminary key

Q51 TS EAPCET 2025 · 3 May · Shift 1 MCQ

If θ is the acute angle between the tangents drawn from the point $(1, 5)$ to the parabola $y^2 = 9x$ then

(A) $\frac{\pi}{6} < \theta < \frac{\pi}{4}$
(B) $\frac{\pi}{3} < \theta < \frac{\pi}{2}$
(C) $0 < \theta < \frac{\pi}{6}$
(D) $\frac{\pi}{4} < \theta < \frac{\pi}{3}$

Answer: (D) $\frac{\pi}{4} < \theta < \frac{\pi}{3}$ · The council's preliminary key

Q52 TS EAPCET 2025 · 3 May · Shift 2 MCQ

The number of normals that can be drawn through the point $(2, 0)$ to the parabola $y^2 = 7x$ is

(A) 0
(B) 1
(C) 2
(D) 3

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

Q53 TS EAPCET 2025 · 3 May · Shift 2 MCQ

If m_1 and m_2 are the slopes of the tangents drawn from the point $(1, 4)$ to the parabola $y^2 = 11x$ then $2({\mathrm{m}_1}^2 + {\mathrm{m}_2}^2) =$

(A) 24
(B) 22
(C) 21
(D) 18

Answer: (C) 21 · The council's preliminary key

Q54 TS EAPCET 2025 · 2 May · Shift 1 MCQ

If the normal drawn at $P(8, 16)$ to the parabola $y^2 = 32x$ meets the parabola again at Q, then the equation of the tangent drawn at Q to the parabola is

(A) $x + 3y + 72 = 0$
(B) $x - y - 120 = 0$
(C) $3x - y - 264 = 0$
(D) $x + y - 24 = 0$

Answer: (A) $x + 3y + 72 = 0$ · The council's preliminary key

Q55 TS EAPCET 2025 · 2 May · Shift 1 MCQ

The focal distance of a point $(5, 5)$ on the parabola $x^2 - 2x - 4y + 5 = 0$ is

(A) 5
(B) 8
(C) 10
(D) 12

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

Q56 TS EAPCET 2025 · 2 May · Shift 2 MCQ

For the parabola $y = x^2 - 3x + 2$, match the items in list-1 to that of the items in list-2. S is a focus, Z is intersection of axis and directrix, P is one end point of latus rectum, Q is the point on the parabola at which tangent is parallel to X-axis

List – 1		List – 2	
A	P	I	$(2, 0)$
B	Q	II	$\left(\frac{3}{2}, -\frac{1}{4}\right)$
C	S	III	$\left(\frac{3}{2}, 0\right)$
D	Z	IV	$\left(\frac{3}{2}, -\frac{1}{2}\right)$
		V	$\left(0, \frac{3}{2}\right)$

(A) A – I, B – II, C – III, D – IV
(B) A – I, B – II, C – V, D – IV
(C) A – II, B – V, C – III, D – IV
(D) A – IV, B – V, C – III, D – I

Answer: (A) A – I, B – II, C – III, D – IV · The council's preliminary key

Q57 TS EAPCET 2025 · 2 May · Shift 2 MCQ

The locus of a point which divides the line segment joining the focus and any point on the parabola $y^2 = 12x$ in the ratio $m : n$ $(m + n \neq 0)$ is a parabola. Then the length of the latus rectum of that parabola is

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(A) $\frac{m}{m+n}$
(B) $\frac{12m}{m+n}$
(C) $\frac{m}{12(m+n)}$
(D) $\frac{n}{12(m+n)}$

Answer: (B) $\frac{12m}{m+n}$ · The council's preliminary key

Q58 AP EAPCET 2024 · 23 May · Shift 1 MCQ

If P is a point which divides the line segment joining the focus of the parabola $y^2 = 12x$ and a point on the parabola in the ratio $1 : 2$. Then, the locus of P is

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

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

Q59 AP EAPCET 2024 · 22 May · Shift 1 MCQ

If the normal chord drawn at $(2a, 2a\sqrt{2})$ on the parabola $y^2 = 4ax$ subtends an angle θ at its vertex, then $\theta =$

(A) 45°
(B) 90°
(C) 135°
(D) 60°

Answer: (B) 90° · The council's preliminary key

Q60 AP EAPCET 2024 · 22 May · Shift 2 MCQ

Equation of the line touching both parabolas $y^2 = 4x$ and $x^2 = -32y$ is

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

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

Q61 AP EAPCET 2024 · 21 May · Shift 1 MCQ

The equation of the normal drawn to the parabola $y^2 = 6x$ at the point $(24, 12)$ is

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(A) $3x - y = 60$
(B) $4x + y = 108$
(C) $2x + y = 60$
(D) $x - 2y = 0$

Answer: (B) $4x + y = 108$ · The council's preliminary key

Q62 AP EAPCET 2024 · 21 May · Shift 2 MCQ

If the ordinates of points P and Q on the parabola $y^2 = 12x$ are in the ratio 1:2, then the locus of the point of intersection of the normals to the parabola at P and Q is

(A) $y + 18\left(\frac{x-6}{21}\right)^{3/2} = 0$
(B) $y - 18\left(\frac{x-6}{12}\right)^{3/2} = 0$
(C) $y + 12\left(\frac{x-6}{14}\right)^{1/2} = 0$
(D) $y - 12\left(\frac{x-6}{18}\right)^{1/2} = 0$

Answer: (A) $y + 18\left(\frac{x-6}{21}\right)^{3/2} = 0$ · The council's preliminary key

Q63 AP EAPCET 2024 · 20 May · Shift 1 MCQ

A common tangent to the circle $x^2 + y^2 = 9$ and parabola $y^2 = 8x$ is

(A) $3x - \sqrt{3}y + 2 = 0$
(B) $x - \sqrt{3}y + 6 = 0$
(C) $2x - \sqrt{3}y + 3 = 0$
(D) $x - 3y + 6 = 0$

Answer: (B) $x - \sqrt{3}y + 6 = 0$ · The council's preliminary key

Q64 AP EAPCET 2024 · 20 May · Shift 2 MCQ

Equation of a tangent line of the parabola $y^2 = 8x$, which passes through the point $(1, 3)$ is

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

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

Q65 AP EAPCET 2024 · 19 May · Shift 2 MCQ

The normal drawn at a point $(2, -4)$ on the parabola $y^2 = 8x$ cuts again the same parabola at (α, β) then $\alpha + \beta =$

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(A) 8
(B) 16
(C) 24
(D) 30

Answer: (D) 30 · The council's preliminary key

Q66 AP EAPCET 2024 · 18 May · Shift 1 MCQ

The line $x-2y-3=0$ cuts the parabola $y^2=4ax$ at the points P and Q. If the focus of this parabola is $\left(\frac{1}{4},k\right)$, then PQ =

(A) $16a\sqrt{5}$
(B) $8a\sqrt{5}$
(C) $4a\sqrt{5}$
(D) $2a\sqrt{5}$

Answer: (A) $16a\sqrt{5}$ · The council's preliminary key

Q67 TS EAPCET 2024 · 11 May · Shift 1 MCQ

$(1,1)$ is the vertex and $x+y+1=0$ is the directrix of a parabola. If (a,b) is its focus and (c,d) is the point of intersection of the directrix and the axis of the parabola, then $a+b+c+d=$

(A) 6
(B) 5
(C) 4
(D) 3

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

Q68 TS EAPCET 2024 · 11 May · Shift 1 MCQ

The axis of a parabola is parallel to Y-axis. If this parabola passes through the points $(1,0)$, $(0,2)$, $(-1,-1)$ and its equation is $ax^2+bx+cy+d=0$, then $\frac{ad}{bc}=$

(A) $\frac{5}{8}$
(B) $\frac{5}{2}$
(C) -10
(D) 10

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

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Q69 TS EAPCET 2024 · 10 May · Shift 1 MCQ

If the focal chord of the parabola $x^2 = 12y$ drawn through the point $(3, 0)$ intersects the parabola at the points P and Q, then the sum of the reciprocals of the abscissae of the points P and Q is

(A) $\frac{1}{4}$
(B) $\frac{1}{5}$
(C) $\frac{1}{3}$
(D) $\frac{1}{8}$

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

Q70 TS EAPCET 2024 · 10 May · Shift 1 MCQ

If the normal drawn at the point P(9,9) on the parabola $y^2 = 9x$ meets the parabola again at Q(a, b), then $2a + b =$

(A) 54
(B) $\frac{99}{2}$
(C) $\frac{63}{2}$
(D) 27

Answer: (D) 27 · The council's preliminary key

Q71 TS EAPCET 2024 · 10 May · Shift 2 MCQ

$S \equiv y^2 - 4ax = 0$, $S' \equiv y^2 + ax = 0$ are two parabolas and P(t) is a point on the parabola $S' = 0$. If A and B are the feet of the perpendiculars from P on to coordinate axes and AB is a tangent to the parabola $S = 0$ at the point $Q(t_1)$, then $t_1 =$

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

Answer: (D) $\frac{t}{2}$ · The council's preliminary key

Q72 TS EAPCET 2024 · 9 May · Shift 1 MCQ

If $(2, 3)$ is the focus and $x - y + 3 = 0$ is the directrix of a parabola then the equation of the tangent drawn at the vertex of the parabola is

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

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

Q73 TS EAPCET 2024 · 9 May · Shift 1 MCQ

The equation of the common tangent to the parabola $y^2 = 8x$ and the circle $x^2 + y^2 = 2$ is $ax + by + 2 = 0$. If $-\frac{a}{b} > 0$, then $3a^2 + 2b + 1 =$

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

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

Q74 TS EAPCET 2024 · 9 May · Shift 1 MCQ

Consider the parabola $25[(x-2)^2 + (y+5)^2] = (3x + 4y - 1)^2$, match the characteristic of this parabola given in List - I with its corresponding item in List-II

List - I	List - II
I Vertex	A 8
II length of latus rectum	B $\left(\frac{29}{10}, \frac{-38}{10}\right)$
III Directrix	C $3x + 4y - 1 = 0$
IV One end of the latus rectum	D $\left(\frac{-2}{5}, \frac{-16}{5}\right)$
	E 6

The correct answer is

(A) I-B, II-E, III-C, IV-D
(B) I-D, II-A, III-C, IV-B
(C) I-B, II-A, III-C, IV-D
(D) I-D, II-B, III-C, IV-A

Answer: (A) I-B, II-E, III-C, IV-D · The council's preliminary key

Q75 TS EAPCET 2024 · 9 May · Shift 2 MCQ

P and Q are the extremities of a focal chord of the parabola $y^2 = 4ax$. If $P = (9, 9)$ and $Q = (p, q)$, then $p - q =$

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(A) $-\frac{27}{16}$
(B) $\frac{63}{16}$
(C) $\frac{45}{16}$
(D) $\frac{81}{16}$

Answer: (C) $\frac{45}{16}$ · The council's preliminary key

Q76 TS EAPCET 2024 · 9 May · Shift 2 MCQ

The number of normals that can be drawn through the point $(9,6)$ to the parabola $y^2=4x$ is

(A) 0
(B) 1
(C) 2
(D) 3

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

Q77 AP EAPCET 2023 · 19 May · Shift 1 MCQ

If the focal chord drawn through the point P(5,5) to the parabola $y^2=5x$ meets the parabola again at the point Q, then the tangent drawn to this parabola at Q meets the axis of the parabola at the point

(A) $\left(\frac{-5}{4},0\right)$
(B) $\left(\frac{5}{16},0\right)$
(C) $\left(\frac{-5}{16},0\right)$
(D) $\left(\frac{5}{4},0\right)$

Answer: (C) $\left(\frac{-5}{16},0\right)$ · The council's preliminary key

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Q78 AP EAPCET 2023 · 18 May · Shift 1 MCQ

If $(2,3)$ is the vertex and $(3,2)$ is the focus of a parabola, then its equation is

(A) $x^2+2xy+y^2-18x-2y+35=0$
(B) $2x^2+4xy+2y^2-9x-y+17=0$
(C) $x^2+2xy+y^2-18x-2y+17=0$
(D) $x^2+4xy+4y^2-18x+2y+9=0$

Answer: (C) $x^2+2xy+y^2-18x-2y+17=0$ · The council's preliminary key

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Q79 AP EAPCET 2023 · 18 May · Shift 2 MCQ

A parabola having its axis parallel to Y-axis, passes through the points $\left(0,\frac{2}{5}\right)$, $(4,-2)$ and $\left(1,\frac{8}{5}\right)$. Then a point that lies on this parabola is

(A) $(3, 5/2)$
(B) $(-1, 2)$
(C) $(-2, 28/5)$
(D) $(2, 8/5)$

Answer: (D) $(2, 8/5)$ · The council's preliminary key

Q80 AP EAPCET 2023 · 17 May · Shift 1 MCQ

Let a focal chord $12x + 5y - 27 = 0$ of the parabola $y^2 = kx$ intersect the parabola at the points P and P^1. If S is the focus of this parabola, then $9\left(\mathrm{SP} + \mathrm{SP}^1\right) =$

(A) 27
(B) 108
(C) $16\ \mathrm{SP}.\mathrm{SP}^1$
(D) $4\ \mathrm{SP}.\mathrm{SP}^1$

Answer: (D) $4\ \mathrm{SP}.\mathrm{SP}^1$ · The council's preliminary key

Q81 AP EAPCET 2023 · 17 May · Shift 2 MCQ

Let ℓ be the directrix of the parabola $9y^2 + 12y + 9x - 14 = 0$ and ℓ_1 be the line passing through the vertex of this parabola and the origin. If (h, k) is the point of intersection of ℓ and ℓ_1, then $h + k =$

(A) $2/3$
(B) $3/2$
(C) $-3/4$
(D) $9/4$

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

Q82 AP EAPCET 2023 · 16 May · Shift 1 MCQ

If a parabola having its axis parallel to X-axis passes through the points $(0, -1)$, $(6, 1)$ and $(-2, -3)$, then the point at which this parabola cuts the X-axis is

(A) $\left(\frac{5}{2}, 0\right)$
(B) $(-1, 0)$
(C) $(6, 0)$
(D) $\left(\frac{8}{5}, 0\right)$

Answer: (A) $\left(\frac{5}{2}, 0\right)$ · The council's preliminary key

Q83 AP EAPCET 2023 · 16 May · Shift 2 MCQ

Let Z be the point of intersection of the axis and the directrix of the parabola $4x^2 - 12x + 4y + 5 = 0$. If S is its focus, then the point which divides SZ in the ratio 2:1 is

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(A) $\left(\frac{3}{2}, \frac{13}{12}\right)$
(B) $\left(1, \frac{13}{12}\right)$
(C) $\left(\frac{3}{4}, \frac{13}{4}\right)$
(D) $\left(\frac{3}{2}, \frac{13}{4}\right)$

Answer: (A) $\left(\frac{3}{2}, \frac{13}{12}\right)$ · The council's preliminary key

Q84 AP EAPCET 2023 · 15 May · Shift 1 MCQ

Let the equation of the tangent at a point P on the parabola $x^2 - 4x - 4y + 16 = 0$ be $2x - y - 5 = 0$. If the equation of the normal drawn at P to this parabola is $ax + y + c = 0$, then $ac =$

(A) -20
(B) 20
(C) 5
(D) -5

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

Q85 AP EAPCET 2023 · 15 May · Shift 2 MCQ

The perpendicular distance from the origin to the focal chord drawn through the point $(4, 5)$ to the parabola $y^2 - 4y - 3x + 7 = 0$ is

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

Answer: (C) $1/5$ · The council's preliminary key

Q86 TS EAMCET 2023 · 14 May · Shift 1 MCQ

If $x - 2y + k = 0$ is a tangent to the parabola $y^2 - 4x - 4y + 8 = 0$, then the value of k is

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

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

Q87 TS EAMCET 2023 · 14 May · Shift 1 MCQ

If the points of intersection of the parabolas $y^2 = 5x$ and $x^2 = 5y$ lie on the line L, then the area of the triangle formed by the directrix of one parabola, latus rectum of another parabola and the line L is

(A) $\frac{15}{32}$
(B) $\frac{12}{25}$
(C) $\frac{25}{8}$
(D) $\frac{25}{32}$

Answer: (C) $\frac{25}{8}$ · The council's preliminary key

Q88 TS EAMCET 2023 · 14 May · Shift 2 MCQ

If $\overline{AB}$ is the focal chord of the parabola $y^2 = 16x$ and A = (1,-4), then the equation of the normal to the parabola at the point B is

(A) $2x + y - 32 = 0$
(B) $2x + y - 48 = 0$
(C) $x - 2y + 16 = 0$
(D) $x + 2y - 48 = 0$

Answer: (B) $2x + y - 48 = 0$ · The council's preliminary key

Q89 TS EAMCET 2023 · 14 May · Shift 2 MCQ

If one of the vertices of an equilateral triangle inscribed in the parabola $y^2 = 12x$ coincides with the vertex of the parabola, then the area (in sq. units) of that triangle is

(A) $192\sqrt{3}$
(B) $864\sqrt{3}$
(C) $216\sqrt{3}$
(D) $432\sqrt{3}$

Answer: (D) $432\sqrt{3}$ · The council's preliminary key

Q90 TS EAMCET 2023 · 13 May · Shift 1 MCQ

If the focal distance of a point $P(2, y_1)$ on the parabola $y^2 = kx$ is 3, then the equation of the tangent drawn at P to the given parabola is

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

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

Q91 TS EAMCET 2023 · 13 May · Shift 1 MCQ

Normals are drawn from the point P (8, 0) to the parabola $y^2 = 12x$. If θ is the acute angle between two non-horizontal normals among them, then $\tan\theta =$

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

Answer: (B) $2\sqrt{6}$ · The council's preliminary key

Q92 TS EAMCET 2023 · 13 May · Shift 2 MCQ

If the line $2x + 3y + n = 0$ is a tangent to the parabola $y^2 = 8x$, then the equation of the normal drawn at the point $(2n, 4\sqrt{n})$ to the parabola $y^2 = 8x$ is

(A) $x - 3y + 18 = 0$
(B) $3x + 2y - 30 = 0$
(C) $3x + y - 66 = 0$
(D) $2x - 3y + 6 = 0$

Answer: (C) $3x + y - 66 = 0$ · The council's preliminary key

Q93 TS EAMCET 2023 · 13 May · Shift 2 MCQ

$ax - y + c = 0$ is the equation of the common tangent to the parabola $y^2 = 8\sqrt{5}\,x$ and the circle $x^2 + y^2 = 1$. If this tangent makes an acute angle with the positive X – axis in the positive direction, then $a^2c^2 =$

(A) 40
(B) 80
(C) 160
(D) 20

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

Q94 TS EAMCET 2023 · 12 May · Shift 1 MCQ

If two circles $x^2 + y^2 - 6x - 6y + 13 = 0$ and $x^2 + y^2 - 8y + 9 = 0$ intersect at A and B, then the focus of the parabola whose directrix is the line AB and vertex is the point $O(0, 0)$ is

(A) $\left(\frac{3}{5}, \frac{1}{5}\right)$
(B) $\left(-\frac{3}{5}, \frac{1}{5}\right)$
(C) $\left(-\frac{3}{5}, -\frac{1}{5}\right)$
(D) $\left(\frac{3}{5}, -\frac{1}{5}\right)$

Answer: (B) $\left(-\frac{3}{5}, \frac{1}{5}\right)$ · The council's preliminary key

Q95 TS EAMCET 2023 · 12 May · Shift 1 MCQ

Two tangents are drawn from the point $(-1, -2)$ to the parabola $y^2 = 4x$. If θ is the angle between these tangents, then $\tan\theta =$

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

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

Q96 TS EAMCET 2023 · 12 May · Shift 1 MCQ

The equation of the parabola with $x + 2y = 1$ as directrix and $(1, 0)$ as focus is

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

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

Q97 TS EAMCET 2023 · 12 May · Shift 2 MCQ

The normal at a point on the parabola $y^2 = 4x$ passes through $(5, 0)$. If there are two more normals to this parabola passing through $(5, 0)$, then the equation of one of these normals is

(A) $2x - y - 10 = 0$
(B) $x + y - 5 = 0$
(C) $\sqrt{3}x + 2y + 5\sqrt{3} = 0$
(D) $\sqrt{3}x - y - 5\sqrt{3} = 0$

Answer: (D) $\sqrt{3}x - y - 5\sqrt{3} = 0$ · The council's preliminary key

Q98 TS EAMCET 2023 · 12 May · Shift 2 MCQ

The equations of common tangents to the parabola $y^2 = 16x$ and the circle $x^2 + y^2 = 8$ are

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

Answer: (D) $y = x + 4,\ y = -x - 4$ · The council's preliminary key

Q99 TS EAMCET 2022 · 20 Jul · Shift 1 MCQ

If the focal chord drawn through the point (1, 2) to the parabola $y^2 = 8x$ meets this parabola in (x_1, y_1) and (x_2, y_2) then $x_1 + x_2 =$

(A) 4
(B) 5
(C) 6
(D) 8

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

Q100 TS EAMCET 2022 · 20 Jul · Shift 1 MCQ

If $(2t^2, 4t)$ is a point on the parabola $y^2 = 8x$ such that its focal distance is 3, then $t =$

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

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

Q101 TS EAMCET 2022 · 20 Jul · Shift 2 MCQ

The equation of the given curve is $x^2 - 4x + 4y - 8 = 0$. Match the following.

List - I
A) Focus
B) Vertex
C) One end of the latus rectum
D) Point of intersection of the axis and directrix

List - II
I) $(4, 2)$
II) $(3, 2)$
III) $(2, 3)$
IV) $(2, 4)$
V) $(2, 2)$

The correct match is

(A) A-II, B-III, C-I, D-IV
(B) A-IV, B-III, C-I, D-V
(C) A-V, B-III, C-IV, D-I
(D) A-V, B-III, C-I, D-IV

Answer: (D) A-V, B-III, C-I, D-IV · The council's preliminary key

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Q102 TS EAMCET 2022 · 20 Jul · Shift 2 MCQ

If one end of a focal chord of the parabola $y^2 = \frac{8}{a}x$ $(a > 0)$ is at $(1, 4)$, then the length of this focal chord is

(A) $\frac{25}{8}$
(B) $\frac{25}{2}$
(C) $\frac{25}{4}$
(D) 25

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

Q103 TS EAMCET 2022 · 19 Jul · Shift 1 MCQ

Statement I : $4x^2 + y^2 - 4xy - 30x - 50y + 40 = 0$ is the equation of parabola having $(2, 3)$ as its focus and $x + 2y + 5 = 0$ as its directrix.

Statement II : The equation of the directrix of the parabola $x^2 - 4x + 16y + 52 = 0$ is $y + 1 = 0$.

Which of the above statements is (are) true?

(A) Statement I is true, but Statement II is false
(B) Statement II is true, but Statement I is false
(C) Both Statement I and Statement II are true
(D) Both Statement I and Statement II are false

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

Q104 TS EAMCET 2022 · 19 Jul · Shift 1 MCQ

The cartesian equation of the parabola $x = -2 + 2t^2$, $y = 2 + 4t$ is

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

Answer: (B) $y^2 - 8x - 4y - 12 = 0$ · The council's preliminary key

Q105 TS EAMCET 2022 · 19 Jul · Shift 2 MCQ

Let LL' be the latus rectum and PQ be the focal chord of the parabola $y^2 = 16x$. If $P = (1, 4)$ and P, L lie in the same quadrant then $LQ =$

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(A) 5
(B) 20
(C) $24\sqrt{5}$
(D) $12\sqrt{5}$

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

Q106 TS EAMCET 2022 · 19 Jul · Shift 2 MCQ

If $P\left(\frac{1}{2}, 4\right)$ and Q are the ends of a focal chord of the parabola $y^2 = 32x$ and S is the focus of the parabola then $SQ =$

(A) $\frac{17}{2}$
(B) $\frac{\sqrt{65}}{2}$
(C) 136
(D) $\frac{289}{2}$

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

Q107 TS EAMCET 2022 · 18 Jul · Shift 1 MCQ

If $y^2 = 16x$ is the given parabola, then the point of intersection of the focal chord through the point $(2, 2)$ and the double ordinate of length 24 is

(A) $(3, 1)$
(B) $(9, -5)$
(C) $(9, 3)$
(D) $(8, -4)$

Answer: (B) $(9, -5)$ · The council's preliminary key

Q108 TS EAMCET 2022 · 18 Jul · Shift 1 MCQ

Let PQ and RT be two focal chords of the parabola $y^2 = 16x$. If $P = (4, 8)$ and $R = (16, 16)$ then $QT =$

(A) 5
(B) $4\sqrt{5}$
(C) $4\sqrt{13}$
(D) 13

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

Q109 TS EAMCET 2022 · 18 Jul · Shift 2 MCQ

The vertex and the focus of the parabola $2x^2 + 5y - 6x + 1 = 0$ respectively, are

(A) $\left(\frac{-3}{2}, \frac{7}{10}\right), \left(\frac{-3}{2}, \frac{53}{40}\right)$
(B) $\left(\frac{-3}{2}, \frac{7}{10}\right), \left(\frac{-3}{2}, \frac{3}{40}\right)$
(C) $\left(\frac{3}{2}, \frac{7}{10}\right), \left(\frac{3}{2}, \frac{53}{40}\right)$
(D) $\left(\frac{3}{2}, \frac{7}{10}\right), \left(\frac{3}{2}, \frac{3}{40}\right)$

Answer: (D) $\left(\frac{3}{2}, \frac{7}{10}\right), \left(\frac{3}{2}, \frac{3}{40}\right)$ · The council's preliminary key

Q110 TS EAMCET 2022 · 18 Jul · Shift 2 MCQ

The axis of a parabola is along the line $y = x$ and the distance of its vertex A from $(0, 0)$ is $\sqrt{2}$ and that of its focus S from $(0, 0)$ is $2\sqrt{2}$. If A and S lie in first quadrant, then the equation of the parabola in parametric form is

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

Answer: (A) $x = (t+1)^2, y = (t-1)^2$ · The council's preliminary key

Q111 AP EAPCET 2022 · 8 Jul · Shift 1 MCQ

The equation of directrix of parabola $x^2 + 8x + 12y + 4 = 0$ is

(A) $y + 4 = 0$
(B) $y - 1 = 0$
(C) $y - 4 = 0$
(D) $y - 2 = 0$

Answer: (C) $y - 4 = 0$ · The council's preliminary key

Q112 AP EAPCET 2022 · 8 Jul · Shift 2 MCQ

If the focus of a parabola is $(0, -3)$ and its directrix is $y = 3$, then its equation is

(A) $x^2 = 12y$
(B) $y^2 = -12x$
(C) $y^2 = 12x$
(D) $x^2 = -12y$

Answer: (D) $x^2 = -12y$ · The council's preliminary key

Q113 AP EAPCET 2022 · 7 Jul · Shift 1 MCQ

For the parabola represented in the parametric form by $x = t^2 + t + 1$ and $y = t^2 - t + 1$, the length of latus rectum is

(A) 2
(B) 3
(C) $1/2$
(D) 8

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

Q114 AP EAPCET 2022 · 7 Jul · Shift 2 MCQ

If the directrix of the parabola $x^2 + 4y - 6x + \lambda = 0$ is $y + 1 = 0$, then which of the following is correct?

(A) $\lambda = -17$
(B) $\lambda = -19$
(C) focus is (3, -3)
(D) vertex is (3, -3)

Answer: (C) focus is (3, -3) · The council's preliminary key

Q115 AP EAPCET 2022 · 6 Jul · Shift 1 MCQ

The parabola with focus at $(4, -3)$ and vertex at $(4, -1)$ is

(A) $x^2 + 8x + 6y + 22 = 0$
(B) $x^2 - 8x - 10y + 6 = 0$
(C) $x^2 - 8x - 16y = 0$
(D) $x^2 - 8x + 8y + 24 = 0$

Answer: (D) $x^2 - 8x + 8y + 24 = 0$ · The council's preliminary key

Q116 AP EAPCET 2022 · 6 Jul · Shift 2 MCQ

The length of the latus rectum of the parabola $(x-2)^2 + (y-3)^2 = \frac{1}{25}(3x - 4y + 7)^2$ is

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

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

Q117 AP EAPCET 2022 · 6 Jul · Shift 2 MCQ

The values of λ, for which $(\lambda, \lambda - 2)$ lies inside the ellipse $4x^2 + 9y^2 = 36$ and outside the parabola $y^2 = x$, satisfy

(A) $0 < \lambda < 1$
(B) $0 \leq \lambda \leq 1$
(C) $0 < \lambda < \frac{36}{13}$
(D) $\lambda \notin [1, 4]$

Answer: (A) $0 < \lambda < 1$ · The council's preliminary key

Q118 AP EAPCET 2022 · 5 Jul · Shift 1 MCQ

Which of the following represents a parabola?

(A) $x = 4\cos t,\ y = 4\sin t$
(B) $x^2 - 2 = -2\cos t,\ y = \cos^2\left(\frac{t}{2}\right)$
(C) $\sqrt{x} = \tan t,\ \sqrt{y} = \sec t$
(D) $x = \sqrt{1 - \sin t},\ y = \sin\left(\frac{t}{2}\right) + \cos\left(\frac{t}{2}\right)$

Answer: (B) $x^2 - 2 = -2\cos t,\ y = \cos^2\left(\frac{t}{2}\right)$ · The council's preliminary key

Q119 AP EAPCET 2022 · 5 Jul · Shift 2 MCQ

The distance of the point $\left(6, 4\sqrt{3}\right)$ from the focus of $y^2 = 8x$ is

(A) 64
(B) 4
(C) 8
(D) 2

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

Q120 AP EAPCET 2022 · 4 Jul · Shift 1 MCQ

Suppose a parabola with focus at (0, 0) has x - y + 1 = 0 as its tangent at the vertex. Then the equation of its directrix is

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

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

Q121 AP EAPCET 2022 · 4 Jul · Shift 1 MCQ

If ax + by = 1 is a normal to the parabola $y^2 = 4px$ then the condition is

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(A) $4ab = a^2 + b^2$

(B) $4pab + ab^3 = a^2b^2$

(C) $pa^3 = b^2 - 2pab^2$

(D) $pa^2 + 4pa = a + b$

Answer: (C) $pa^3 = b^2 - 2pab^2$ · The council's preliminary key

Q122 AP EAPCET 2022 · 4 Jul · Shift 2 MCQ

Suppose a parabola passes through (0, 4), (1, 9) and (4, 5) and has its axis parallel to the y-axis. Then the equation of the parabola is

(A) $19x^2 + 12y - 79x - 48 = 0$

(B) $19x^2 + 12y - 79x + 48 = 0$

(C) $19y^2 + 12x - 79y - 48 = 0$

(D) $19y^2 + 12x - 79y + 48 = 0$

Answer: (A) $19x^2 + 12y - 79x - 48 = 0$ · The council's preliminary key

Q123 AP EAPCET 2021 · 5 Oct · Shift 1 MCQ

The length of latus rectum of the parabola whose focal chord PSQ is such that $SP = 3$ and $SQ = 2$ is _____ units

(A) $\frac{12}{5}$

(B) $\frac{6}{5}$

(C) $\frac{8}{5}$

(D) $\frac{24}{5}$

Answer: (D) $\frac{24}{5}$ · The council's preliminary key

Q124 AP EAPCET 2021 · 25 Aug · Shift 1 MCQ

If the coordinates of the ends of a focal chord of the parabola $x^2 = 4ay$ are (x_1, y_1) and (x_2, y_2), then _____

(A) $y_1y_2 = 4a^2$

(B) $y_1y_2 = -4a^2$

(C) $y_1y_2 = -a^2$

(D) $y_1y_2 = a^2$

Answer: (D) $y_1y_2 = a^2$ · The council's preliminary key

Q125 AP EAPCET 2021 · 25 Aug · Shift 2 MCQ

The equation of the directrix of parabola $y^2 - x + 4y + 5 = 0$ is _____

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(A) $4y - 3 = 0$
(B) $4x - 3 = 0$
(C) $3x - 4 = 0$
(D) $3y - 4 = 0$

Answer: (B) $4x - 3 = 0$ · The council's preliminary key

Q126 AP EAPCET 2021 · 24 Aug · Shift 1 MCQ

If $x - 2 = t^2,\ y = 2t$ are the parametric equations of the parabola $y^2 = a(x - b)$, then the value of $a + b$ equals _____

(A) 4
(B) 2
(C) 0
(D) 6

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

Q127 AP EAPCET 2021 · 24 Aug · Shift 2 MCQ

If $(2, 0)$ is the vertex and y-axis is the directrix of a parabola, then its focus is _____

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

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

Q128 AP EAPCET 2021 · 23 Aug · Shift 1 MCQ

If the line $2bx + 3cy + 4d = 0$ passes through the points of intersection of $y^2 = 4ax$ and $x^2 = 4ay$, then _____

(A) $d^2 + (2b + 3c)^2 = 0$
(B) $d^2 + (3b + 2c)^2 = 0$
(C) $d^2 + (2b - 3c)^2 = 0$
(D) $d^2 + (3b - 2c)^2 = 0$

Answer: (A) $d^2 + (2b + 3c)^2 = 0$ · The council's preliminary key

Q129 AP EAPCET 2021 · 23 Aug · Shift 2 MCQ

If the point $(a, 2a)$ is an interior point of the region bounded by the parabola $y^2 = 16x$ and the double ordinate through focus, then _____

(A) $a < 4$
(B) $0 < a < 4$
(C) $0 < a < 2$
(D) $a > 4$

Answer: (B) $0 < a < 4$ · The council's preliminary key

Q130 AP EAPCET 2021 · 20 Aug · Shift 1 MCQ

The coordinates of the focus of the parabola described parametrically by $x = 5t^2 + 2,\ y = 10t + 4$ (where t is a parameter) are _____

(A) $(7, 4)$
(B) $(3, 4)$
(C) $(3, -4)$
(D) $(-7, 4)$

Answer: (A) $(7, 4)$ · The council's preliminary key

Q131 AP EAPCET 2021 · 20 Aug · Shift 2 MCQ

The point of intersection of the latus rectum and axis of the parabola $y^2 + 4x + 2y - 8 = 0$ is _____

(A) $\left(\frac{9}{4}, -1\right)$
(B) $\left(\frac{5}{4}, -1\right)$
(C) $\left(\frac{7}{2}, \frac{5}{2}\right)$
(D) $\left(\frac{-5}{4}, 1\right)$

Answer: (B) $\left(\frac{5}{4}, -1\right)$ · The council's preliminary key

Q132 AP EAPCET 2021 · 19 Aug · Shift 1 MCQ

If one end of focal chord of the parabola $y^2 = 8x$ is $\left(\frac{1}{2}, 2\right)$, then the length of the focal chord is _____ units

(A) $\frac{625}{4}$
(B) $\frac{5}{\sqrt{2}}$
(C) $\frac{25}{2}$
(D) 25

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

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Q133 AP EAPCET 2021 · 19 Aug · Shift 2 MCQ

Find the equation of the parabola which passes through $(6, -2)$, has its vertex at the origin and its axis along the y-axis.

(A) $y^2 = 18x$
(B) $x^2 = 18y$
(C) $y^2 = -18x$
(D) $x^2 = -18y$

Answer: (D) $x^2 = -18y$ · The council's preliminary key

Q134 TS EAMCET 2021 · 6 Aug · Shift 1 MCQ

The area of a triangle (in sq. units) formed by the latus rectum of the parabola $x^2 = 16y$ and the lines joining the vertex of the parabola to the ends of the latus rectum is

(A) 24
(B) 28
(C) 32
(D) 64

Answer: (C) 32 · The council's preliminary key

Q135 TS EAMCET 2021 · 6 Aug · Shift 1 MCQ

If $(2, k)$ is a point on the parabola passing through the points $(1, -3)$, $(-1, 5)$, $(0, 2)$ and having its axis parallel to the Y-axis, then $k =$

(A) -10
(B) 3
(C) -7
(D) 5

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

Q136 TS EAMCET 2021 · 6 Aug · Shift 2 MCQ

$A(-2, 3)$ is a fixed point outside the parabola $y^2 = 4ax$ $(a > 0)$ and P is a point moving on the parabola. The locus of a point Q which divides AP in the ratio $3 : 2$ is a conic. Then focus of that conic is

(A) $(a, 0)$
(B) $\left(\frac{-4}{5}+\frac{3a}{5}, \frac{a}{5}\right)$
(C) $\left(\frac{3a-4}{5}, \frac{6}{5}\right)$
(D) $\left(\frac{a}{5}, \frac{3a-4}{5}\right)$

Answer: (C) $\left(\frac{3a-4}{5}, \frac{6}{5}\right)$ · The council's preliminary key

Q137 TS EAMCET 2021 · 6 Aug · Shift 2 MCQ

The length of the latus rectum of the conic $25\left[(x-2)^2+(y-3)^2\right]=(3x-4y+7)^2$ is

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

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

Q138 TS EAMCET 2021 · 5 Aug · Shift 1 MCQ

If a parabola having horizontal axis and passes through the points $(-2,1),(1,2)$ and $(-1,3)$ then the y-coordinate of the focus of that parabola is

(A) $\frac{37}{40}$
(B) $\frac{21}{10}$
(C) $\frac{41}{40}$
(D) $\frac{-41}{40}$

Answer: (B) $\frac{21}{10}$ · The council's preliminary key

Q139 TS EAMCET 2021 · 5 Aug · Shift 1 MCQ

If $ax^2+2hxy+by^2-82x+98y+144=0$ is the equation of a parabola with focus $(2,-3)$ and directrix $3x-2y+5=0$, then $ax^2+2hxy+by^2=0$ represents

(A) two lines making an angle $\frac{\pi}{3}$ at origin
(B) a conic with eccentricity $\frac{a}{b}$
(C) two perpendicular lines
(D) two coincident lines

Answer: (D) two coincident lines · The council's preliminary key

Q140 TS EAMCET 2021 · 5 Aug · Shift 2 MCQ

The parametric equations of the parabola $x^2-8x+12y+15=0$ are

(A) $x = 4 + 6t,\ y = \frac{1}{12} - 3t^2$
(B) $x = \frac{1}{12} - 3t^2,\ y = 4 + 6t$
(C) $x = 3t^2,\ y = 6t$
(D) $x = 6t,\ y = 3t^2$

Answer: (A) $x = 4 + 6t,\ y = \frac{1}{12} - 3t^2$ · The council's preliminary key

Q141 TS EAMCET 2021 · 5 Aug · Shift 2 MCQ

The equation of the directrix of the parabola $(2x - 3y - 5)^2 = 20(3x + 2y + 1)$ is

(A) $3x + 2y + 1 + 5 = 0$
(B) $3x + 2y + 5 = 0$
(C) $2x - 3y + 1 + 5\sqrt{3} = 0$
(D) $2x - 3y + 5 = 0$

Answer: (A) $3x + 2y + 1 + 5 = 0$ · The council's preliminary key

Q142 TS EAMCET 2021 · 4 Aug · Shift 1 MCQ

A point on the parabola whose focus and vertex are respectively at $\left(\frac{5}{4}, -2\right)$ and $(1, -2)$ is

(A) $(4,\ 0)$
(B) $(15,\ 2)$
(C) $(3,\ -1)$
(D) $(10,\ 1)$

Answer: (D) $(10,\ 1)$ · The council's preliminary key

Q143 TS EAMCET 2021 · 4 Aug · Shift 1 MCQ

The parametric equations of the parabola $y^2 - 4x - 8y - 12 = 0$ are

(A) $x = 7 + 2t,\ \ y = -4 + t^2$
(B) $x = -7 + 2t,\ \ y = 4 + 2t$
(C) $x = -7 + t^2,\ \ y = -4 + 2t$
(D) $x = -7 + t^2,\ \ y = 4 + 2t$

Answer: (D) $x = -7 + t^2,\ \ y = 4 + 2t$ · The council's preliminary key

Q144 TS EAMCET 2021 · 4 Aug · Shift 2 MCQ

Match the items given in List-A with those of the items of List-B
A) The vertex of the parabola $y^2 + 4x - 2y + 3 = 0$ is
B) The vertex of the parabola $x^2 + 8x + 12y + 4 = 0$ is
C) The focus of the parabola $y^2 - x - 2y + 2 = 0$ is
D) The focus of the parabola $x^2 - 2x - 8y - 23 = 0$ is

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I) $\left(\frac{5}{4}, 1\right)$
II) $\left(1, \frac{5}{4}\right)$
III) $\left(\frac{-1}{2}, 1\right)$
IV) $(1, -1)$
V) $(-4, 1)$
The correct match is

(A) A-III, B-V, C-II, D-IV
(B) A-V, B-II, C-I, D-IV
(C) A-III, B-II, C-I, D-IV
(D) A-III, B-V, C-I, D-IV

Answer: (D) A-III, B-V, C-I, D-IV · The council's preliminary key

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Q145 TS EAMCET 2021 · 4 Aug · Shift 2 MCQ

For the parabola $y = 2 + 4t,\ x = -2 + 2t^2$, the ends of the latus rectum are at $t = \alpha$ and $t = \beta$, then $\alpha\beta =$

(A) 0
(B) 1
(C) -1
(D) 8

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

Q146 AP EAMCET 2020 · 7 Oct · Shift 1 MCQ

The area of the triangle formed by the lines joining the vertex of the parabola $x^2 = 12y$ to the ends of its latus rectum is equal to _____ sq. units

(A) 8
(B) 12
(C) 16
(D) 18

Answer: (D) 18 · The council's preliminary key

Q147 AP EAMCET 2020 · 23 Sep · Shift 1 MCQ

The directrix of the parabola $2y^2 + 25x = 0$ is _____

(A) $8x - 25 = 0$
(B) $8y - 25 = 0$
(C) $25x - 28 = 0$
(D) $25y - 8 = 0$

Answer: (A) $8x - 25 = 0$ · The council's preliminary key

Q148 AP EAMCET 2020 · 23 Sep · Shift 1 MCQ

The angle between the tangents drawn from the point $(1, 4)$ to the parabola $y^2 = 4x$ is _____

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

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

Q149 AP EAMCET 2020 · 22 Sep · Shift 1 MCQ

If the line $y = 2x + k$ is normal to the parabola $y^2 = 4x$, then $k =$

(A) -10
(B) 10
(C) 12
(D) -12

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

Q150 AP EAMCET 2020 · 22 Sep · Shift 1 MCQ

The length of the latus rectum of a parabola whose focal chord PSQ is such that $PS = 3$ and $QS = 2$ is _____

(A) $\frac{24}{5}$
(B) $\frac{12}{5}$
(C) $\frac{6}{5}$
(D) $\frac{12}{10}$

Answer: (A) $\frac{24}{5}$ · The council's preliminary key

Q151 AP EAMCET 2020 · 22 Sep · Shift 2 MCQ

The largest value of k for which the circle $x^2 + y^2 = k^2$ lies completely in the interior of the parabola $y^2 = 4x + 16$ is

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

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

Q152 AP EAMCET 2020 · 21 Sep · Shift 1 MCQ

The Parabola with directrix $x + 2y - 1 = 0$ and focus $(1, 0)$ is _____

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

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

Q153 AP EAMCET 2020 · 21 Sep · Shift 2 MCQ

The equation of the tangent to the parabola $y^2 = 12x$ at $(3, -6)$ is

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

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

Q154 AP EAMCET 2020 · 21 Sep · Shift 2 MCQ

The equation of the tangent to the parabola $y^2 = 8x$ inclined at 30° to the x-axis is

(A) $3x - \sqrt{3}\,y + 14 = 0$
(B) $2x - 3y + 14 = 0$
(C) $2x - \sqrt{3}\,y + 7 = 0$
(D) $x - \sqrt{3}\,y + 6 = 0$

Answer: (D) $x - \sqrt{3}\,y + 6 = 0$ · The council's preliminary key

Q155 AP EAMCET 2020 · 18 Sep · Shift 1 MCQ

The equation of the tangent to the parabola $y^2 = 12x$, which makes an angle 30° with the positive direction of x-axis is given by $x - \sqrt{3}y + 9 = 0$, then its point of contact is

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(A) $(-9, -6\sqrt{3})$
(B) $(9, -6\sqrt{3})$
(C) $(-9, 6\sqrt{3})$
(D) $(9, 6\sqrt{3})$

Answer: (D) $(9, 6\sqrt{3})$ · The council's preliminary key

Q156 AP EAMCET 2020 · 18 Sep · Shift 1 MCQ

The equation of the tangent to the parabola $y^2 = 16x$, which is perpendicular to the line $3x - 4y + 5 = 0$ is given by

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

Answer: (C) $4x + 3y + 9 = 0$ · The council's preliminary key

Q157 AP EAMCET 2020 · 18 Sep · Shift 2 MCQ

The co-ordinates of focus of the parabola $5x^2 = -12y$ are _____

(A) $\left(\frac{3}{5}, 0\right)$
(B) $\left(\frac{-3}{5}, 0\right)$
(C) $\left(0, \frac{3}{5}\right)$
(D) $\left(0, \frac{-3}{5}\right)$

Answer: (D) $\left(0, \frac{-3}{5}\right)$ · The council's preliminary key

Q158 AP EAMCET 2020 · 18 Sep · Shift 2 MCQ

The co-ordinates of the focus of the parabola $(x + 3)^2 = 2(y - 5)$ is

(A) $\left(\frac{-5}{2}, 5\right)$
(B) $\left(-3, \frac{11}{2}\right)$
(C) $\left(3, \frac{-11}{2}\right)$
(D) $\left(0, \frac{1}{2}\right)$

Answer: (B) $\left(-3, \frac{11}{2}\right)$ · The council's preliminary key

Q159 AP EAMCET 2020 · 17 Sep · Shift 1 MCQ

The length of the latus rectum of the parabola $169\{(x - 1)^2 + (y - 3)^2\} = (5x - 12y + 17)^2$ is

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(A) $\frac{14}{13}$
(B) $\frac{12}{13}$
(C) $\frac{28}{13}$
(D) $\frac{56}{13}$

Answer: (C) $\frac{28}{13}$ · The council's preliminary key

Q160 AP EAMCET 2020 · 17 Sep · Shift 2 MCQ

If $x + 5 = 0$ is the directrix and $(-3, 0)$ the vertex of a parabola, then equation of this parabola is _____

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

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

Q161 AP EAMCET 2020 · 17 Sep · Shift 2 MCQ

The common tangent to the parabola $y^2 = 32x$ and $x^2 = 256y$ will be _____

(A) $2x + 4y + 64 = 0$
(B) $x + 2y - 32 = 0$
(C) $2x + 4y + 32 = 0$
(D) $4x + 2y + 64 = 0$

Answer: (A) $2x + 4y + 64 = 0$ · The council's preliminary key

Q162 TS EAMCET 2020 · 14 Sep · Shift 1 MCQ

If S(a, b) is a fixed point and P(α, β) is such a variable point that $4\left[(x - a)^2 + (y - b)^2\right] = (\alpha x + \beta y + 7)^2$ represents a parabola, then the locus of P(α, β) is

(A) $\beta^2 = 4\alpha$
(B) $\alpha^2 + \beta^2 = 4$
(C) $\frac{\alpha^2}{4} + \frac{\beta^2}{2} = 1$
(D) $(\alpha + \beta)^2 = 4$

Answer: (B) $\alpha^2 + \beta^2 = 4$ · Official TGCHE final key

Q163 TS EAMCET 2020 · 14 Sep · Shift 1 MCQ

If P $(-3, 2)$ is an end point of the focal chord PQ of the parabola $y^2 + 4x + 4y = 0$, then the slope of the normal drawn at Q is

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

Answer: (A) $\frac{-1}{2}$ · Official TGCHE final key

Q164 TS EAMCET 2020 · 14 Sep · Shift 2 MCQ

If PQ is a focal chord of the parabola $y^2 = 4x$ with focus S and $P = (4, 4)$, then $SQ =$

(A) 2
(B) $\frac{5}{4}$
(C) 5
(D) $\frac{3}{2}$

Answer: (B) $\frac{5}{4}$ · Official TGCHE final key

Q165 TS EAMCET 2020 · 14 Sep · Shift 2 MCQ

If the parabola $x^2 = 4ay$, $(a > 0)$ makes an intercept of length $\sqrt{40}$ units on the line $y = 1 + 2x$ then $4a =$

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

Answer: (A) 1 · Official TGCHE final key

Q166 TS EAMCET 2020 · 11 Sep · Shift 1 MCQ

If a circle with its centre at the focus of the parabola $y^2 = 2px$ is such that it touches the directrix of the parabola, then a point of intersection of the circle and the parabola is

(A) $\left(\frac{p}{2}, 2p\right)$
(B) $\left(\frac{-p}{2}, p\right)$
(C) $\left(\frac{p}{2}, -p\right)$
(D) $(-p/2, -p)$

Answer: (C) $\left(\frac{p}{2}, -p\right)$ · Official TGCHE final key

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Q167 TS EAMCET 2020 · 11 Sep · Shift 1 MCQ

If the tangent drawn at the point $P(4,8)$ to the parabola $y^2=16x$ meets the parabola $y^2=16x+80$ at A and B, then the midpoint of AB is

(A) $(9,6)$
(B) $(4,8)$
(C) $(4,1)$
(D) $(2,3)$

Answer: (B) $(4,8)$ · Official TGCHE final key

Q168 TS EAMCET 2020 · 11 Sep · Shift 2 MCQ

If all the vertices of an equilateral triangle lie on the parabola $y^2=16x$ and one of them coincides with the vertex of that parabola, then the length of the side of that triangle is

(A) $32\sqrt{3}$
(B) $16\sqrt{3}$
(C) $8\sqrt{3}$
(D) 32

Answer: (A) $32\sqrt{3}$ · Official TGCHE final key

Q169 TS EAMCET 2020 · 11 Sep · Shift 2 MCQ

If $mx-y+c=0$ is a normal at a point P on the parabola $y^2=16x$ and the focal distance of P is 40 units, then $|c|=$

(A) 108
(B) 132
(C) 66
(D) 60

Answer: (B) 132 · Official TGCHE final key

Q170 TS EAMCET 2020 · 10 Sep · Shift 1 MCQ

Consider the parabola $y^2+2x+2y-3=0$ and match the items of list - I with those of the List - II
List -I
A) $2x-5=0$
B) $\left(\frac{3}{2},-1\right)$
C) $y+1=0$
D) $(2,-1)$
List -II
I) Vertex
II) Focus

III) Equation of directrix
IV) Equation of the axis
V) Equation of the Latus rectum
The correct match is

(A) A-III, B-II, C-IV, D-I
(B) A-V, B-I, C-IV, D-II
(C) A-III, B-II, C-V, D-I
(D) A-IV, B-I, C-III, D-II

Answer: (A) A-III, B-II, C-IV, D-I · Official TGCHE final key

Q171 TS EAMCET 2020 · 10 Sep · Shift 1 MCQ

The normal at a point on the parabola $y^2 = 4x$ passes through $(5, 0)$. If there are two more normals to this parabola which pass through $(5, 0)$, the centroid of the triangle formed by the feet of these three normals is

(A) $\left(\frac{1}{2}, \frac{1}{2}\right)$
(B) $(4, 0)$
(C) $(0, 2)$
(D) $(2, 0)$

Answer: (D) $(2, 0)$ · Official TGCHE final key

Q172 TS EAMCET 2020 · 10 Sep · Shift 2 MCQ

For the parabola $y = \frac{h^3}{3}x^2 + \frac{h^2}{2}x - h + \frac{3}{4h^3}$, if the equation of directrix is $y = k$, then $k : h =$

(A) $16 : 19$
(B) $-19 : 16$
(C) $20 : 27$
(D) $-27 : 20$

Answer: (B) $-19 : 16$ · Official TGCHE final key

Q173 TS EAMCET 2020 · 10 Sep · Shift 2 MCQ

The equation of the common tangent of the parabolas $x^2 = 108y$ and $y^2 = 32x$ is

(A) $2x + 3y + 36 = 0$
(B) $2x + 3y = 36$
(C) $3x + 2y + 36 = 0$
(D) $3x + 2y = 36$

Answer: (A) $2x + 3y + 36 = 0$ · Official TGCHE final key

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Q174 TS EAMCET 2020 · 9 Sep · Shift 1 MCQ

Let $A(1,2)$, $B(4,-4)$, $C(2,2\sqrt{2})$ be points on the parabola $y^2=4x$. If α and β respectively represent the area of Δ ABC and the area of the triangle formed by the tangents at A, B, C to the above parabola, then $\alpha\beta=$

(A) 6
(B) $3\sqrt{2}$
(C) 9
(D) $6\sqrt{2}$

Answer: (C) 9 · Official TGCHE final key

Q175 TS EAMCET 2020 · 9 Sep · Shift 1 MCQ

If $x-2y+k=0$ is a tangent to the parabola $y^2-4x-4y+8=0$, then the slope of the tangent drawn at (l,k) on the given parabola is

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

Answer: (D) $\frac{2}{5}$ · Official TGCHE final key

Q176 TS EAMCET 2020 · 9 Sep · Shift 2 MCQ

If $y=mx+c$ is a common tangent to the parabola $y^2=4\sqrt{k}\,x$ and the circle $2x^2+2y^2=k$ then the product of the slopes of such common tangents is

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

Answer: (C) -1 · Official TGCHE final key

Q177 TS EAMCET 2020 · 9 Sep · Shift 2 MCQ

If a normal to the parabola $y^2=12x$ at A$(3,-6)$ cuts the parabola again at P, then the equation of the tangent at P is

(A) $x - 3y + 27 = 0$
(B) $x + y = 45$
(C) $y - x + 9 = 0$
(D) $3x + y = 99$

Answer: (A) $x - 3y + 27 = 0$ · Official TGCHE final key

Q178 TS EAMCET 2019 · 6 May · Shift 1 MCQ

If $y = mx + 1$ is a tangent to the parabola $y^2 = 4x$, then $m =$

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

Answer: (B) 1 · Official TGCHE final key

Q179 TS EAMCET 2019 · 6 May · Shift 1 MCQ

If the line segment joining the vertex of the parabola $y^2 = 4ax$ and a point on the parabola, makes an angle θ with the positive X-axis, then the length of that line segment is

(A) $\frac{4a \sin\theta}{\cos^2\theta}$
(B) $\frac{4a \cdot \cos\theta}{\sin^2\theta}$
(C) $4a \sin\theta \cdot \cos^2\theta$
(D) $4a \cos\theta \cdot \sin^2\theta$

Answer: (B) $\frac{4a \cdot \cos\theta}{\sin^2\theta}$ · Official TGCHE final key

Q180 TS EAMCET 2019 · 4 May · Shift 1 MCQ

If the locus of a point which divides a chord with slope 2 of the parabola $y^2 = 4x$, internally in the ratio 1:3 is a parabola, then its vertex is

(A) $(2, 1)$
(B) $\left(\frac{3}{16}, \frac{3}{2}\right)$
(C) $\left(\frac{3}{4}, \frac{3}{16}\right)$
(D) $\left(\frac{3}{16}, \frac{3}{4}\right)$

Answer: (D) $\left(\frac{3}{16}, \frac{3}{4}\right)$ · Official TGCHE final key

Q181 TS EAMCET 2019 · 4 May · Shift 1 MCQ

If the normal at one end of the latus rectum of the parabola $y^2 = 16x$ meets the X-axis at the point P, then the length of the chord passing through P and perpendicular to the normal is

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(A) $48\sqrt{2}$
(B) $32\sqrt{2}$
(C) $24\sqrt{2}$
(D) $20\sqrt{2}$

Answer: (B) $32\sqrt{2}$ · Official TGCHE final key

Q182 TS EAMCET 2019 · 4 May · Shift 2 MCQ

The angle between the tangents drawn from the point $(1, 4)$ to the parabola $y^2 = 4x$ is

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

Answer: (A) $\frac{\pi}{3}$ · Official TGCHE final key

Q183 TS EAMCET 2019 · 4 May · Shift 2 MCQ

If the line $y = -x + k$ is a normal to the curve $y^2 = 16x$, then k is

(A) 21
(B) 14
(C) 13
(D) 12

Answer: (D) 12 · Official TGCHE final key

Q184 TS EAMCET 2019 · 3 May · Shift 1 MCQ

Study the following statements.

I. The vertex of the parabola $x = ly^2 + my + n$ is $\left(n - \frac{m^2}{4l}, -\frac{m}{2l}\right)$

II. The focus of the parabola $y = lx^2 + mx + n$ is $\left(n + \frac{1 - m^2}{4l}, -\frac{m}{2l}\right)$

III. The pole of the line $lx + my + n = 0$ with respect to the parabola $x^2 = 4ay$ is $\left(-\frac{2al}{m}, \frac{n}{m}\right)$

Then, the correct option among the following is

(A) All the three statements are true
(B) Statements I & II are true but III is false
(C) Statements I & III are true but II is false
(D) Statements II & III are true but I is false

Answer: (C) Statements I & III are true but II is false · Official TGCHE final key

Q185 TS EAMCET 2019 · 3 May · Shift 1 MCQ

Let P represent the point $(3, 6)$ on the parabola $y^2 = 12x$. For the parabola $y^2 = 12x$, if l_1 is the length of the normal chord drawn at P and l_2 is the length of the focal chord drawn through P, then $\frac{l_1}{l_2} =$

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

Answer: (A) $2\sqrt{2}$ · Official TGCHE final key

Q186 TS EAMCET 2019 · 3 May · Shift 2 MCQ

The vertex of the parabola $(y-1)^2 = 8(x-1)$ is at the centre of a circle and the parabola cuts that circle at the ends of its latus rectum. Then the equation of that circle is

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

Answer: (A) $x^2 + y^2 - 2x - 2y - 18 = 0$ · Official TGCHE final key

Q187 TS EAMCET 2019 · 3 May · Shift 2 MCQ

Consider the curves $C_1 : y^2 = 4x$ and $C_2 : x^2 + y^2 - 6x + 1 = 0$
Assertion (A): The common tangents to the curves C_1 and C_2 are orthogonal.
Reason (R): $x - y + 1 = 0$ and $x + y + 1 = 0$ are the common tangents to the curves C_1 and C_2
The correct answer is

(A) (A) is true, (R) is true and (R) is the correct explanation of (A).
(B) (A) is true, (R) is true but (R) is not a correct explanation of (A).
(C) (A) is true but (R) is false.
(D) (A) is false but (R) is true.

Answer: (A) (A) is true, (R) is true and (R) is the correct explanation of (A). · Official TGCHE final key

Q188 AP EAMCET 2019 · 23 Apr · Shift 1 MCQ

The parametric equations of the parabola $y^2 - 8x - 4y - 12 = 0$ are

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

Answer: (C) $x = -2 + 2t^2,\ y = 2 + 4t$ · Official APSCHE final key

Q189 AP EAMCET 2019 · 23 Apr · Shift 1 MCQ

For any non-zero real value of m, the equation of the parabola to which the line $mx - y + 10 + m^2 = 0$ is a tangent, is

(A) $x^2 = y - 10$
(B) $y^2 = 4(x - 2)$
(C) $x^2 = -4(y - 10)$
(D) $x^2 = -4y$

Answer: (C) $x^2 = -4(y - 10)$ · Official APSCHE final key

Q190 AP EAMCET 2019 · 22 Apr · Shift 1 MCQ

The length of the latus rectum of the parabola $20(x^2 + y^2 - 6x - 2y + 10) = (4x - 2y - 5)^2$ is

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

Answer: (C) $\sqrt{5}$ · Official APSCHE final key

Q191 AP EAMCET 2019 · 22 Apr · Shift 1 MCQ

$y = 3x - 2$ is a straight line touching the parabola $(y - 3)^2 = 12(x - 2)$. If a line drawn perpendicular to this line at P on it, touches the given parabola, then the point P is

(A) $(-1, -5)$
(B) $(-1, 5)$
(C) $(-2, -8)$
(D) $(2, 4)$

Answer: (A) $(-1, -5)$ · Official APSCHE final key

Q192 AP EAMCET 2019 · 22 Apr · Shift 2 MCQ

For the parabola $y^2 + 2x + 2y - 3 = 0$ match the items in List - I with those from List - II.
List - I
A) Vertex
B) Focus

C) Equation of the Directrix
D) Equation of the Axis
List - II
I) $2x - 5 = 0$
II) $\left(\frac{3}{2}, -1\right)$
III) $x - 2 = 0$
IV) $y + 1 = 0$
V) $(2, -1)$
VI) $\left(2, \frac{3}{2}\right)$
The correct match is

(A) A-V, B-VI, C-I, D-III
(B) A-V, B-II, C-I, D-IV
(C) A-VI, B-V, C-IV, D-I
(D) A-II, B-VI, C-III, D-IV

Answer: (B) A-V, B-II, C-I, D-IV · Official APSCHE final key

Q193 AP EAMCET 2019 · 22 Apr · Shift 2 MCQ

The area (in sq.units) of the triangle formed by the normal to the parabola $y^2 = 16x$ whose slope is $\frac{1}{2}$ with the co-ordinates axes is

(A) $\frac{9}{4}$
(B) $\frac{27}{4}$
(C) $\frac{54}{4}$
(D) $\frac{81}{4}$

Answer: (D) $\frac{81}{4}$ · Official APSCHE final key

Q194 AP EAMCET 2019 · 21 Apr · Shift 1 MCQ

If the focus of a parabola divides a focal chord of the parabola into segments of lengths 5, 3 units, then the length of the latus rectum of that parabola is

(A) $\frac{15}{4}$
(B) 20
(C) $\frac{25}{2}$
(D) $\frac{15}{2}$

Answer: (D) $\frac{15}{2}$ · Official APSCHE final key

Q195 AP EAMCET 2019 · 21 Apr · Shift 1 MCQ

The angle between the tangents drawn to the parabola $y^2 = 4x$ from the point $(1, 4)$ is

(A) $\frac{\pi}{4}$
(B) $\frac{\pi}{3}$
(C) $\frac{2\pi}{5}$
(D) $\frac{\pi}{6}$

Answer: (B) $\frac{\pi}{3}$ · Official APSCHE final key

Q196 AP EAMCET 2019 · 21 Apr · Shift 2 MCQ

The normal at a point on the parabola $y^2 = 4x$ passes through $(5, 0)$. If two more normals to this parabola also pass through $(5, 0)$, then the centroid of the triangle formed by the feet of these three normals is

(A) $\left(\frac{1}{2}, \frac{1}{2}\right)$
(B) $(2, 0)$
(C) $(5, 0)$
(D) $(0, 2)$

Answer: (B) $(2, 0)$ · Official APSCHE final key

Q197 AP EAMCET 2019 · 21 Apr · Shift 2 MCQ

The equation of the normal to the parabola $y^2 = 4x$ which is perpendicular to $x + 3y + 1 = 0$ is

(A) $3x - y = 33$
(B) $3x - y + 33 = 0$
(C) $3x + y = 33$
(D) $3x + y + 33 = 0$

Answer: (A) $3x - y = 33$ · Official APSCHE final key

Q198 AP EAMCET 2019 · 20 Apr · Shift 1 MCQ

The parabola $x^2 = 4ay$ makes an intercept of length $\sqrt{40}$ units on the line $y = 1 + 2x$ then a value of $4a$ is

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

Answer: (B) -2 · Official APSCHE final key

Q199 AP EAMCET 2019 · 20 Apr · Shift 1 MCQ

The locus of the points of intersection of perpendicular normals to the parabola $y^2 = 4ax$ is

(A) $y^2 - 2ax + a^2 = 0$
(B) $y^2 + ax + 2a^2 = 0$
(C) $y^2 - ax + 2a^2 = 0$
(D) $y^2 - ax + 3a^2 = 0$

Answer: (D) $y^2 - ax + 3a^2 = 0$ · Official APSCHE final key

Q200 AP EAMCET 2019 · 20 Apr · Shift 2 MCQ

The vertex and the focus of the parabola $2y^2 + 5x - 6y + 1 = 0$ are respectively

(A) $\left(\frac{7}{10}, \frac{3}{2}\right), \left(\frac{3}{40}, \frac{3}{2}\right)$
(B) $\left(\frac{-7}{10}, \frac{3}{2}\right), \left(\frac{53}{40}, \frac{3}{2}\right)$
(C) $\left(\frac{7}{10}, \frac{-3}{2}\right), \left(\frac{7}{10}, \frac{7}{8}\right)$
(D) $\left(\frac{-7}{10}, \frac{-3}{2}\right), \left(\frac{7}{10}, \frac{17}{8}\right)$

Answer: (A) $\left(\frac{7}{10}, \frac{3}{2}\right), \left(\frac{3}{40}, \frac{3}{2}\right)$ · Official APSCHE final key

Q201 AP EAMCET 2019 · 20 Apr · Shift 2 MCQ

If a normal chord at a point $t(\neq 0)$ on the parabola $y^2 = 9x$ subtends a right angle at its vertex, then $t =$

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

Answer: (D) $\pm\sqrt{2}$ · Official APSCHE final key

Q202 TS EAMCET 2018 · 7 May · Shift 1 MCQ

If two distinct chords drawn from the point A(4, 4) on the parabola $y^2 = 4x$ are bisected by the line $y = ax$, then the interval in which a lies is

(A) $\left(\frac{1}{2} - \frac{1}{\sqrt{2}}, \frac{1}{2} + \frac{1}{\sqrt{2}}\right)$
(B) $\left(-\frac{\sqrt{3}}{2}, \frac{1}{2}\right)$
(C) $\left(\frac{1+\sqrt{2}}{2}, \frac{5+\sqrt{2}}{2}\right)$
(D) $(2, \infty)$

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

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Q203 TS EAMCET 2018 · 7 May · Shift 1 MCQ

The locus of the mid point of the line segment joining the focus to a moving point on the parabola $y^2 = 4ax$ is a conic. The equation of the directrix of that conic is

(A) $y = a$
(B) $x = a$
(C) $y = 0$
(D) $x = 0$

Answer: (D) $x = 0$ · The council's preliminary key

Q204 TS EAMCET 2018 · 5 May · Shift 1 MCQ

Let P (2, 4), Q (18, -12) be the points on the parabola $y^2 = 8x$. The equation of straight line having slope $\frac{1}{2}$ and passing through the point of intersection of the tangents to the parabola drawn at the points P and Q is

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

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

Q205 TS EAMCET 2018 · 5 May · Shift 2 MCQ

If $(-1, -1)$ is the focus and $x + y + 4 = 0$ is the directrix of a parabola, then its vertex is

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

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

Q206 TS EAMCET 2018 · 5 May · Shift 2 MCQ

If a normal chord of a parabola $y^2 = 4ax$ subtends a right angle at the origin, then the slope of that normal chord is

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

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

Q207 TS EAMCET 2018 · 4 May · Shift 1 MCQ

If two tangents to the parabola $y^2 = 8x$ meet the tangent at its vertex in M and N such that[] $MN = 4$, then the locus of the point of intersection of those two tangents is

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

Answer: (C) $y^2 = 8(x + 2)$ · The council's preliminary key

Q208 TS EAMCET 2018 · 4 May · Shift 1 MCQ

Three normals are drawn from the point $(c, 0)$ to the curve $y^2 = x$. If one of the normal[s] is X-axis, then the value of c for which the other two normals are perpendicular to eac[h] other is

(A) $\frac{1}{4}$
(B) $\frac{1}{2}$
(C) $\frac{3}{4}$
(D) $\frac{5}{8}$

Answer: (C) $\frac{3}{4}$ · The council's preliminary key

Q209 TS EAMCET 2018 · 4 May · Shift 2 MCQ

Match the items of List-I with those of List-II.
List-I
a) Equation of the tangent drawn at $(2, \sqrt{8})$ on the curve $y^2 = 4x$ is
b) Equation of the normal to the curve $y^2 = 16x$, that makes an angle of 45° with its axis is
c) The chord joining the points (x_1, y_1) and (x_2, y_2) on the curve $y^2 = 12x$ is a focal chord if $y_1 y_2 =$
d) A value of k for which $x - 3 = 0$ is the directrix of the curve $y^2 - kx + 16 = 0$ is
List-II
i) -36
ii) 4
iii) 8
iv) $x - \sqrt{2}y + 2 = 0$

v) $x + y - 12 = 0$
vi) $x - y - 12 = 0$
Then which of the following is correct?

(A) a-v, b-iv, c-iii, d-ii
(B) a-vi, b-v, c-ii, d-i
(C) a-iv, b-vi, c-i, d-ii
(D) a-iv, b-vi, c-ii, d-iii

Answer: (C) a-iv, b-vi, c-i, d-ii · The council's preliminary key

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Q210 TS EAMCET 2018 · 4 May · Shift 2 MCQ

An equilateral triangle is inscribed in the parabola $y^2 = 16ax$ with one of its vertices at the origin. Then the centroid of that triangle is

(A) $(8a, 0)$
(B) $(16a, 0)$
(C) $(32a, 0)$
(D) $(48a, 0)$

Answer: (C) $(32a, 0)$ · The council's preliminary key

Q211 AP EAMCET 2018 · 24 Apr · Shift 1 MCQ

If the double ordinate of the parabola $y^2 = 8x$ is of length 16, then the angle subtended by it at the vertex of the parabola is

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

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

Q212 AP EAMCET 2018 · 24 Apr · Shift 1 MCQ

If the tangent at the point $(1, 2)$ on the ellipse $3x^2 + 4y^2 = 19$ is also a tangent to the parabola $y^2 - kx = 0$, then $k =$

(A) $\frac{57}{16}$
(B) $\frac{-57}{64}$
(C) $\frac{57}{64}$
(D) $\frac{-57}{16}$

Answer: (D) $\frac{-57}{16}$ · The council's preliminary key

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Q213 AP EAMCET 2018 · 24 Apr · Shift 2 MCQ

If a focal chord of the parabola $y^2 = 4x$ makes an angle 45° with positive X-axis, then the slopes of the normals drawn at the ends of the focal chord will satisfy the equation

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

Answer: (B) $x^2 + 2x - 1 = 0$ · Checked by our team

Q214 AP EAMCET 2018 · 24 Apr · Shift 2 MCQ

If the angle between the tangents drawn through the point $(-2, -1)$ to the parabola $y^2 = 4x$ is θ, then $\tan 2\theta =$

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

Answer: (C) $\frac{-3}{4}$ · The council's preliminary key

Q215 AP EAMCET 2018 · 23 Apr · Shift 1 MCQ

For the parabola $y^2 + 6y - 2x + 5 = 0$, match the items in List-I with the suitable item in List-II given below:

List-I

I) Vertex

II) Focus

III) Equation of the directrix

IV) Equation of the axis

List-II

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

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

C) $2x + 5 = 0$

D) $2x + y + 3 = 0$

E) $y + 3 = 0$

F) $(-2, -3)$

The correct matching is

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(A) I-F, II-A, III-E, IV-C
(B) I-F, II-A, III-C, IV-E
(C) I-A, II-B, III-C, IV-D
(D) I-F, II-A, III-C, IV-D

Answer: (B) I-F, II-A, III-C, IV-E · The council's preliminary key

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Q216 AP EAMCET 2018 · 23 Apr · Shift 1 MCQ

If $5x - 2y + k = 0$ is a tangent to the parabola $y^2 = 6x$, then their point of contact is

(A) $\left(\frac{6}{5}, \frac{6}{5}\right)$
(B) $\left(\frac{6}{5}, \frac{6}{25}\right)$
(C) $\left(\frac{6}{25}, \frac{6}{5}\right)$
(D) $\left(\frac{6}{25}, \frac{6}{25}\right)$

Answer: (C) $\left(\frac{6}{25}, \frac{6}{5}\right)$ · The council's preliminary key

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Q217 AP EAMCET 2018 · 23 Apr · Shift 2 MCQ

If a parabola passess (sic) through the points $(-2, 1)$, $(1, 2)$ and $(-1, 3)$ having horizontal axis, then the length of the latus rectum of that parabola is

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

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

Q218 AP EAMCET 2018 · 23 Apr · Shift 2 MCQ

The equation of one of the common tangents of the circle $x^2 + y^2 - 6y + 4 = 0$ and the parabola $y^2 = x$ is

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

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

Q219 AP EAMCET 2018 · 22 Apr · Shift 1 MCQ

The line $y = 6x + 1$ touches the parabola $y^2 = 24x$. The coordinates of a point P on this line, from which the tangent to $y^2 = 24x$ is perpendicular to the line $y = 6x + 1$, is

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(A) $(-1, -5)$
(B) $(-2, -11)$
(C) $(-6, -35)$
(D) $(-7, -41)$

Answer: (C) $(-6, -35)$ · The council's preliminary key

Q220 AP EAMCET 2018 · 22 Apr · Shift 1 MCQ

A point on the parabola whose focus is S(1, -1) and whose vertex is A(1, 1) is

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

Answer: (A) $(3, \frac{1}{2})$ · The council's preliminary key

Q221 AP EAMCET 2018 · 22 Apr · Shift 2 MCQ

If a perpendicular drawn through the vertex O of the parabola $y^2 = 4ax$ to any of its tangent meets the tangent at N and the parabola at M, then $ON \cdot OM =$

(A) $4a^2$
(B) $3a^2$
(C) $2a^2$
(D) a^2

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

Q222 AP EAMCET 2018 · 22 Apr · Shift 2 MCQ

Let α_1 and α_2 be the ordinates of two points A and B on a parabola $y^2 = 4ax$ and let α_3 be the ordinate of the point of intersection of its tangents at A and B. Then $\alpha_3 - \alpha_2 =$

(A) $\alpha_3 - \alpha_1$
(B) $\alpha_3 + \alpha_1$
(C) α_1
(D) $\alpha_1 - \alpha_3$

Answer: (D) $\alpha_1 - \alpha_3$ · The council's preliminary key

Q223 TS EAMCET 2017 · 12 May · Offline MCQ

For the parabola $y^2 + 6y - 2x = -5$
I) the vertex is $(-2, -3)$
II) the directrix is $y + 3 = 0$
Which of the following is correct?

(A) Both I and II are correct
(B) I is true, II is false
(C) Both I and II are false
(D) I is false, II is true

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

Q224 TS EAMCET 2017 · 12 May · Offline MCQ

If the line $x - y = -4K$ is a tangent to the parabola $y^2 = 8x$ at P, then the perpendicular distance of normal at P from $(K, 2K)$ is

(A) $\frac{5}{2\sqrt{2}}$
(B) $\frac{7}{2\sqrt{2}}$
(C) $\frac{9}{2\sqrt{2}}$
(D) $\frac{1}{2\sqrt{2}}$

Answer: (C) $\frac{9}{2\sqrt{2}}$ · The council's preliminary key

Q225 AP EAMCET 2017 · 26 Apr · Shift 1 MCQ

The equation of the parabola whose axis is parallel to the X-axis and which passes through the points $(-2, 1)$ $(1, 2)$ $(-1, 3)$ is

(A) $25y^2 - 2x - 65y + 36 = 0$
(B) $15y^2 + 12x - 11y + 20 = 0$
(C) $5y^2 + 2x - 21y + 20 = 0$
(D) $18y^2 - 12x - 21y - 21 = 0$

Answer: (C) $5y^2 + 2x - 21y + 20 = 0$ · The council's preliminary key

Q226 AP EAMCET 2017 · 26 Apr · Shift 1 MCQ

The tangents to the parabola $y^2 = 4ax$ from an external point P make angles θ_1 and θ_2 with the axis of the parabola, such that $\tan\theta_1 + \tan\theta_2 = b$ where b is constant. Then P lies on

(A) $y = bx$
(B) $y = x + b$
(C) $y = \frac{x}{b}$
(D) $y + x = b$

Answer: (A) $y = bx$ · The council's preliminary key

Q227 AP EAMCET 2017 · 26 Apr · Shift 2 MCQ

The locus of the point of intersection of the normals to the parabola $x^2 = 8y$, which are right angles to each other, is

(A) $y^2 = 2x - 5$
(B) $y^2 = x - 12$
(C) $x^2 = y - 10$
(D) $x^2 = 2y - 12$

Answer: (D) $x^2 = 2y - 12$ · The council's preliminary key

Q228 AP EAMCET 2017 · 26 Apr · Shift 2 MCQ

A point on the parabola whose axis is parallel to the X-axis and which passes through the points $(0, 1)$, $(3, 0)$, $(0, -2)$ is

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

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

Q229 AP EAMCET 2017 · 25 Apr · Shift 1 MCQ

If tangent lines are drawn from the point $(-1, 2)$ to the parabola $y^2 = 4x$, then the area of the triangle (in sq. units) formed by the chord of contact and the tangents drawn, is

(A) $4\sqrt{2}$
(B) $5\sqrt{2}$
(C) $7\sqrt{2}$
(D) $8\sqrt{2}$

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

Q230 AP EAMCET 2017 · 25 Apr · Shift 1 MCQ

If (x_1, y_1) and (x_2, y_2) are the points on the parabola $y^2 = 32x$ each at a focal distance of 10 units, then $2(x_1^2 + x_2^2 + y_1^2 + y_2^2) =$

(A) 68
(B) 136
(C) 272
(D) 8

Answer: (C) 272 · The council's preliminary key

Q231 AP EAMCET 2017 · 25 Apr · Shift 2 MCQ

If the normal at the point t_1 (i.e., at $(at_1^2, 2at_1)$) on $y^2 = 4ax$ meets the parabola again at the point t_2, then $t_1t_2 =$

(A) $-2 - t_1^2$
(B) -2
(C) $-t_1^2 + 2$
(D) $t_1^2 + 2$

Answer: (A) $-2 - t_1^2$ · The council's preliminary key

Q232 AP EAMCET 2017 · 25 Apr · Shift 2 MCQ

The equation of the common tangent to the parabolas $y^2 = 32x$ and $x^2 = 256y$ is

(A) $x + 2y - 32 = 0$
(B) $x + 2y + 32 = 0$
(C) $2x + y - 32 = 0$
(D) $2x + y + 32 = 0$

Answer: (B) $x + 2y + 32 = 0$ · The council's preliminary key

Q233 AP EAMCET 2017 · 24 Apr · Shift 1 MCQ

A = $(-2, 0)$ and P is a point on the parabola $y^2 = 8x$. If Q bisects $\overline{AP}$ and the locus of Q is a parabola, then its focus is

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

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

Q234 AP EAMCET 2017 · 24 Apr · Shift 1 MCQ

Let S be the focus of the parabola $y^2 = 4ax$ and PQ be a focal chord such that SP $= \alpha$ and SQ $= \alpha'$. Then $\frac{1}{\alpha} + \frac{1}{\alpha'} =$

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

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

Q235 AP EAMCET 2017 · 24 Apr · Shift 2 MCQ

The angle subtended by the normal chord at the point $(9, 9)$ on the parabola $y^2 = 9x$, at the focus of the parabola is

(A) 45°
(B) 60°
(C) 90°
(D) 135°

Answer: (C) 90° · The council's preliminary key

Q236 AP EAMCET 2017 · 24 Apr · Shift 2 MCQ

If the vertex of a parabola is $(4, 3)$ and its directrix is $3x + 2y - 7 = 0$, then the equation of latus rectum of the parabola is

(A) $3x + 2y - 18 = 0$
(B) $3x + 2y - 29 = 0$
(C) $3x + 2y - 8 = 0$
(D) $3x + 2y - 31 = 0$

Answer: (B) $3x + 2y - 29 = 0$ · The council's preliminary key

Q237 TS EAMCET 2016 · 15 May · Offline MCQ

From a point $(C, 0)$ three normals are drawn to the parabola $y^2 = x$. Then

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

Answer: (C) $C > \frac{1}{2}$ · Official TGCHE final key

Q238 TS EAMCET 2016 · 15 May · Offline MCQ

The points of intersection of the parabolas $y^2 = 5x$ and $x^2 = 5y$ lie on the line

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

Answer: (C) $x - y = 0$ · Official TGCHE final key

Q239 AP EAMCET 2016 · 29 Apr · Offline MCQ

The distance between the vertex and the focus of the parabola $x^2 - 2x + 3y - 2 = 0$ is

(A) $\frac{4}{5}$
(B) $\frac{3}{4}$
(C) $\frac{1}{2}$
(D) $\frac{5}{6}$

Answer: (B) $\frac{3}{4}$ · The council's preliminary key

Q240 AP EAMCET 2016 · 29 Apr · Offline MCQ

If (x_1, y_1) and (x_2, y_2) are the end points of a focal chord of the parabola $y^2 = 5x$, then $4x_1x_2 + y_1y_2 =$

(A) 25
(B) 5
(C) 0
(D) $\frac{5}{4}$

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

Q241 AP EAMCET 2016 · 29 Apr · Offline MCQ

The equation of the common tangent drawn to the curves $y^2 = 8x$ and $xy = -1$ is

(A) $y = 2x + 1$
(B) $2y = x + 6$
(C) $y = x + 2$
(D) $3y = 8x + 2$

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

Q242 AP EAMCET 2014 · 22 May · Offline MCQ

If a normal chord at a point t on the parabola $y^2 = 4ax$ subtends a right angle at the vertex, then $t =$

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

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

Q243 AP EAMCET 2014 · 22 May · Offline MCQ

The slopes of the focal chords of the parabola $y^2 = 32x$ which are tangents to the circle $x^2 + y^2 = 4$ are

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(A) $\frac{1}{2}, \frac{-1}{2}$
(B) $\frac{1}{\sqrt{3}}, \frac{-1}{\sqrt{3}}$
(C) $\frac{1}{\sqrt{15}}, \frac{-1}{\sqrt{15}}$
(D) $\frac{2}{\sqrt{5}}, \frac{-2}{\sqrt{5}}$

Answer: (C) $\frac{1}{\sqrt{15}}, \frac{-1}{\sqrt{15}}$ · The council's preliminary key

Q244 AP EAMCET 2013 · 10 May · Offline MCQ

A circle of radius 4, drawn on a chord of the parabola $y^2 = 8x$ as diameter, touches the axis of the parabola. Then, the slope of the chord is

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

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

Q245 AP EAMCET 2012 · 12 May · Offline MCQ

Let $x + y = k$ be a normal to the parabola $y^2 = 12x$. If p is the length of the perpendicular from the focus of the parabola onto this normal, then $4k - 2p^2 =$

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

Answer: (B) 0 · Official APSCHE final key

Q246 AP EAMCET 2011 · 8 May · Offline MCQ

If a chord of the parabola $y^2 = 4x$ passes through its focus and makes an angle θ with the X-axis, then its length is

(A) $4\cos^2\theta$
(B) $4\sin^2\theta$
(C) $4\operatorname{cosec}^2\theta$
(D) $4\sec^2\theta$

Answer: (C) $4\operatorname{cosec}^2\theta$ · The council's preliminary key

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Q247 AP EAMCET 2011 · 8 May · Offline MCQ

If the straight line $y = mx + c$ is parallel to the axis of the parabola $y^2 = lx$ and intersects the parabola at $\left(\frac{c^2}{8}, c\right)$ then the length of the latus rectum is

(A) 2
(B) 3
(C) 4
(D) 8

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

Q248 AP EAMCET 2010 · 30 May · Offline MCQ

Let M be the foot of the perpendicular from a point P on the parabola $y^2 = 8(x - 3)$ onto its directrix and let S be the focus of the parabola. If $\triangle SPM$ is an equilateral triangle, then $P =$

(A) $(4\sqrt{3}, 8)$
(B) $(8, 4\sqrt{3})$
(C) $(9, 4\sqrt{3})$
(D) $(4\sqrt{3}, 9)$

Answer: (C) $(9, 4\sqrt{3})$ · Official APSCHE final key

Q249 AP EAMCET 2010 · 30 May · Offline MCQ

If the lines $2x + 3y + 12 = 0$, $x - y + k = 0$ are conjugate with respect to the parabola $y^2 = 8x$, then $k =$

(A) 10
(B) $\frac{7}{2}$
(C) -12
(D) -2

Answer: (C) -12 · Official APSCHE final key

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