MATHS

BOOKS - RESONANCE DPP ENGLISH

CONIC SECTIONS

Others

1. The equation $y^2 + 3 = 2(2x + y)$ represents a parabola with the vertex at: $\left(\frac{1}{2}, 1\right)$ & axis parallel to x-axis $\left(1, \frac{1}{2}\right)$ & axis

parallel to x-axis (1/2 , 1) & focus at $\left(\frac{3}{2}, 1\right)$ $\left(\frac{1}{2}, 1\right)$ & axis parallel to y-axis.

Watch Video Solution

2. An ellipse $\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1$ passes through the point $(-3, 1)$ and its eccentricity is $\sqrt{\frac{2}{5}}$.

The equation of the ellipse is $3x^2 + 5y^2 = 32$

(b) $3x^2 + 5y^2 = 48$ $5x^2 + 3y^2 = 32$ (d) $5x^2 + 3y^2 = 48$

Watch Video Solution

3. The point of intersection of tangents drawn to the hyperbola $\frac{x^2}{a^2} - \frac{y^2}{b^2} = 1$ at the points where it is intersected by the line $lx + my + n = 0$ is

Watch Video Solution

4. The equation of common tangent(s) to the parabola $y^2 = 16x$ and the circle $x^2 + y^2 = 8$ is/are $x + y + 4 = 0$ (b) $x + y - 4 = 0$ $x - y - 4 = 0$ (d) $x - y + 4 = 0$

Watch Video Solution

5. The chord of contact of the pair of tangents drawn from each point on the line $2x + y = 4$ to the parabola $y^2 = -4x$ passes through a fixed point : (A) $(-2, 1)$ (B) $(-2, -1)$ (C) $\left(\frac{1}{2}, \frac{1}{4}\right)$ (D) $\left(-\frac{1}{2}, -\frac{1}{4}\right)$

Watch Video Solution

6. The hyperbola $\frac{x^2}{a^2} - \frac{y^2}{b^2} = 1$ passes through the point (2,) and has the eccentricity

2. Then the transverse axis of the hyperbola has the length 1 (b) 3 (c) 2 (d) 4

Watch Video Solution

7. The tangent at the point P on the rectangular hyperbola $xy = k^2$ with C intersects the coordinate axes at $QandR$. Locus of the circumcentre of triangle CQR is (a)$x^2 + y^2 = 2k^2$ (b) $x^2 + y^2 = k^2$ (c)$xy = k^2$ (d) None of these

Watch Video Solution

8. If $L_1 \& L_2$ are the lengths of the segments of any focal chord of the parabola $y^2 = x$, then

(a) $\frac{1}{L_1} + \frac{1}{L_2} = 2$ (b) $\frac{1}{L_1} + \frac{1}{L_2} = \frac{1}{2}$ (c) $\frac{1}{L_1} + \frac{1}{L_2} = 4$ (d) $\frac{1}{L_1} + \frac{1}{L_2} = \frac{1}{4}$

Watch Video Solution

9. If $y = 2x + 3$ is a tangent to the parabola $y^2 = 24x$, then find its distance from the parallel normal.

Watch Video Solution

10. For hyperbola $\frac{x^2}{\cos^2\alpha} - \frac{y^2}{\sin^2\beta} = 1$ which of the following remains constant with change in α

Watch Video Solution

11. Number of normals drawn from the point $(-2, 2)$ to the parabola $y^2 - 2y - 2x - 1 = 0$ is one (b) two (c) three (d) zero

Watch Video Solution

12. If the line $2x - 2y + \lambda = 0$ is a secant to the parabola $x^2 = -8y$, then λ lies in the interval $(4, \infty)$ (b) $(-\infty, 4)$ (c) $(0, 4)$ (d) $None of these$

Watch Video Solution

13. A set of parallel chords of the parabola $y^2 = 4ax$ have their midpoint on any straight

line through the vertex any straight line through the focus a straight line parallel to the axis another parabola

Watch Video Solution

14. A rhombus is formed by two radii and two chords of a circle whose radius is 16cm. The area of the rhombus is : (in square cm)(a) 128 (b) $128\sqrt{3}$ (c)256 (d) 512

Watch Video Solution

15. A point on a parabola $y^2 = 4ax$, the foot of the perpendicular from it upon the directrix, and the focus are the vertices of an equilateral triangle. The focal distance of the point is equal to $\frac{a}{2}$ (b) a (c) $2a$ (d) $4a$

Watch Video Solution

16. The chord of contact of the pair of tangents drawn from each point on the line $2x + y = 4$ to the parabola $y^2 = -4x$

passes through a fixed point : (A) $(-2, 1)$ (B) $(-2, -1)$ (C) $\left(\frac{1}{2}, \frac{1}{4}\right)$ (D) $\left(-\frac{1}{2}, -\frac{1}{4}\right)$

Watch Video Solution

17. The focal chord to $y^2 = 16x$ is tangent to $(x-6)^2 + y^2 = 2$. Then the possible value of the slope of this chord is $\{-1, 1\}$ (b) $\{-2, 2\}$ $\left\{-2, \frac{1}{2}\right\}$ (d) $\left\{2, -\frac{1}{2}\right\}$

Watch Video Solution

18. Find the locus of the point of intersection of the perpendicular tangents of the curve $y^2 + 4y - 6x - 2 = 0$.

Watch Video Solution

19. Through the vertex $'O'$ of the parabola $y^2 = 4ax$, variable chords $OPandOQ$ are drawn at right angles. If the variable chord PQ intersects the axis of x at R, then distance OR: (a)equals double the

perpendicular distance of focus from the directrix. (b)equal the semi latus rectum of the parabola (c)equals latus rectum of the parabola (d)equals double the latus rectum of the parabola

Watch Video Solution

20. The locus of the midpoint of the line segment joining the focus to a moving point on the parabola $y^2 = 4ax$ is another parabola whose (a)Directrix is y-axis (b) Length of latus

rectum is $2a$ (c)focus is $\left(\frac{a}{2}, 0\right)$ (d) Vertex is $(a, 0)$

Watch Video Solution

21. The equation to the chord joining two points $(x_1, y_1) and (x_2, y_2)$ on the rectangular hyperbola $xy = c^2$ is:

$$\frac{x}{x_1 + x_2} + \frac{y}{y_1 + y_2} = 1$$

$$\frac{x}{x_1 - x_2} + \frac{y}{y_1 - y_2} = 1$$

$$\frac{x}{y_1 + y_2} + \frac{y}{x_1 + x_2} = 1$$

(d)

$$\frac{x}{y_1 - y_2} + \frac{y}{x_1 - x_2} = 1$$

Watch Video Solution

22. The locus of the point of intersection of the tangents at the extremities of the chords of the ellipse $x^2 + 2y^2 = 6$ which touch the ellipse $x^2 + 4y^2 = 4$, is $x^2 + y^2 = 4$ (b) $x^2 + y^2 = 6$ $x^2 + y^2 = 9$ (d) None of these

Watch Video Solution

23. Let us consider an ellipse whose major and minor axis are $3x + 4y - 7 = 0$ and

$4x - 3y - 1 = 0$ respectively. P be a variable point on the ellipse at any instance, it is given that distance of P from major and minor axis are 4 and 5 respectively. It is also given that maximum distance P from minor axis is $5\sqrt{2}$, then its eccentricity is $\frac{3}{5}$ (b) $\frac{3}{\sqrt{34}}$ (c) $\frac{4}{5}$ (d) None of these

Watch Video Solution

24. If two distinct chords, drawn from the point (p, q) on the circle $x^2 + y^2 = px + qy$

(where $pq \neq q$) are bisected by the x-axis, then

$p^2 = q^2$ (b) $p^2 = 8q^2$ $p^2 < 8q^2$ (d) $p^2 > 8q^2$

Watch Video Solution

25. A parabola $y = ax^2 + bx + c$ crosses the x-axis at $(\alpha, 0)(\beta, 0)$ both to the right of the origin. A circle also passes through these two points. The length of a tangent from the origin to the circle is: (a) $\sqrt{\frac{bc}{a}}$ (b) ac^2 (c) b/a (d) $\sqrt{\frac{c}{a}}$

Watch Video Solution