

CONIC SECTION

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I. SECTION B

31. A hyperbola passes through point $p(\sqrt{2}, \sqrt{2})$ and has foci at $(\pm 2, 0)$. Then the tangent to this hyperbola at P also passes through the point :
(JEE M 2017)
- $(-\sqrt{2}, -\sqrt{3})$
 - $(3\sqrt{2}, 2\sqrt{3})$
 - $(2\sqrt{2}, 3\sqrt{3})$
 - $(\sqrt{3}, \sqrt{2})$
32. The radius of a circle, having minimum area, which touches the curve $y = 4 - x^2$ and the lines $y = |x|$ is :
(JEE M 2018)
- $4(\sqrt{2}+1)$
 - $2(\sqrt{2}+1)$
 - $2(\sqrt{2}-1)$
 - $4(\sqrt{2}-1)$
33. Tangents are drawn to the hyperbola $4x^2 - y^2 = 36$ at the points P and Q. If these tangents intersect at the point T(0,3) then the area (in sq.units) of ΔPTQ is:
(JEE M 2018)
- $54\sqrt{3}$
 - $60\sqrt{3}$
 - $36\sqrt{3}$
 - $45\sqrt{5}$
34. tangent and normal are drawn at P(16,16) on the parabola $y^2 = 16x$, which intersect the axis of the parabola at A and B, respectively. If C is the centre of the circle through the points P, A and B and $\angle CPB = \theta$, then the value of $\tan \theta$ is :
(JEE M 2018)
- 2
 - 3
 - $4/3$
 - $1/2$
35. Two sets A and B are as under:
 $A = \{(a,b) \in \mathbb{R} \times \mathbb{R} : |a-5| < 1 \text{ and } |b-5| < 1\}$;
 $B = \{(a,b) \in \mathbb{R} \times \mathbb{R} : 4(a-6)^2 + 9(b-5)^2 \leq 36\}$. Then:
(JEE M 2018)
- $A \subset B$
 - $A \cap B$
 - neither $A \subset B$ nor $B \subset A$
 - $B \subset A$
36. If the tangent at (1,7) to the curve $x^2 = y - 6$ touches the circle $x^2 + y^2 + 16x + 12y + c = 0$ then the value of c is :
(JEE M 2018)
- 185
 - 85
 - 95
 - 195
37. Axis of a parabola lies along X-axis. If its vertex and focus are at a distance 2 and 4 respectively from origin, on the positive X-axis then which of the following points does not lie on it?
(JEE M 2018)

- a) $(5, 2\sqrt{6})$ c) 24
 b) $(8, 6)$ d) 20
 c) $(6, 4\sqrt{2})$
 d) $(4, -4)$

38. Let $0 < \theta < \pi/2$. If the eccentricity of the hyperbola $\frac{x^2}{\cos^2 \theta} - \frac{y^2}{\sin^2 \theta} = 1$ is greater than 2, then the length of its latus rectum lies in the interval:

(JEE M 2019-9 Jan(M))

- a) $(3, \infty)$
 b) $(3/2, 3]$
 c) $(2, 3]$
 d) $(1, 3/2]$

39. Equation of a common tangent to the circle $x^2 + y^2 - 6x = 0$ and the parabola $y^2 = 4x$, is:

(JEE M 2019-9 Jan(M))

- a) $2\sqrt{3}y = 12x + 1$
 b) $\sqrt{3}y = x + 3$
 c) $2\sqrt{3}y = -x - 12$
 d) $\sqrt{3}y = 3x + 1$

40. If the line $y = mx + 7\sqrt{3}$ is normal to the hyperbola $\frac{x^2}{24} - \frac{y^2}{18} = 1$ then a value of m is:

(JEEM 2019-9 April(M))

- a) $\sqrt{5}/2$
 b) $\sqrt{15}/2$
 c) $2/\sqrt{5}$
 d) $3/\sqrt{5}$

41. If one end of a focal chord of the parabola, $y^2 = 16x$ is at $(1, 4)$, then the length of this focal chord is :

(JEE M 2019-9 Jan(M))

- a) 25
 b) 22