



MATHS

BOOKS - JEE MAINS PREVIOUS YEAR

ENGLISH

ELLIPSE

Others

1. A focus of an ellipse is at the origin. The directrix is the line $x = 4$ and the eccentricity

is $1/2$. Then the length of the semimajor axis is

- (1) $\frac{8}{3}$ (2) $\frac{2}{3}$ (3) $\frac{4}{3}$ (4) $\frac{5}{3}$



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2. The ellipse $x^2 + 4y^2 = 4$ is inscribed in a rectangle aligned with the coordinate axes, which in turn is inscribed in another ellipse that passes through the point $(4, 0)$. Then the equation of the ellipse is (1) $x^2 + 16y^2 = 16$
(2) $x^2 + 12y^2 = 16$ (3) $4x^2 + 48y^2 = 48$ (4)
 $4x^2 + 64y^2 = 48$



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3. An ellipse is drawn by taking a diameter of the circle $(x)^2 + y^2 = 1$ as its semiminor axis and a diameter of the circle $x^2 + (y2)^2 = 4$ as its semi-major axis. If the centre of the ellipse is the origin and its axes are the coordinate axes, then the equation of the ellipse is (1)

$$4x^2 + y^2 = 4 \quad (2) \quad x^2 + 4y^2 = 8 \quad (3)$$

$$4x^2 + y^2 = 8 \quad (4) \quad x^2 + 4y^2 = 16$$



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4. The equation of the circle passing through the foci of the ellipse $\frac{x^2}{16} + \frac{y^2}{9} = 1$, and having centre at $(0, 3)$ is (1)

$$x^2 + y^2 - 6y + 7 = 0 \quad (2)$$

$$x^2 + y^2 - 6y - 5 = 0 \quad (3)$$

$$x^2 + y^2 - 6y + 5 = 0 \quad (4)$$

$$x^2 + y^2 - 6y - 7 = 0$$



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5. The eccentricity of an ellipse whose centre is at the origin is $\frac{1}{2}$. If one of its directrices is $x = -4$, then the equation of the normal to it at $\left(1, \frac{3}{2}\right)$ is: (1) $4x + 2y = 7$ (2) $x + 2y = 4$
(3) $2y - x = 2$ (4) $4x - 2y = 1$



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