

## Conic Section: Ellipse - Class XI

### Past Year JEE Questions

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#### Questions

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##### Question: 01

If the points of intersections of the ellipse  $\frac{x^2}{16} + \frac{y^2}{b^2} = 1$  and the circle  $x^2 + y^2 = 4b$ ,  $b > 4$  lie on the curve  $y^2 = 3x^2$ , then  $b$  is equal to :

- A. 12
- B. 10
- C. 6
- D. 5

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#### Solutions

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##### Solution: 01

##### Explanation

$$\frac{x^2}{16} + \frac{y^2}{b^2} = 1 \dots (1)$$

$$x^2 + y^2 = 4b \dots (2)$$

$$y^2 = 3x^2 \dots (3)$$

From eq (2) and (3)

$$x^2 = b \text{ and } y^2 = 3b$$

From equation (1)

$$\frac{b}{16} + \frac{3b}{b^2} = 1$$

$$\Rightarrow b^2 + 48 = 16b$$

$$\Rightarrow b = 12$$