

## Circles - Class XI

### Past Year JEE Questions

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#### Questions

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##### Question: 01

Let a point P be such that its distance from the point (5, 0) is thrice the distance of P from the point (-5, 0). If the locus of the point P is a circle of radius r, then  $4r^2$  is equal to \_\_\_\_\_

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#### Solutions

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##### Solution: 01

#### Answer

Correct Answer is **56**

#### Explanation

Let P(h, k)

Given

$$PA = 3PB$$

$$PA^2 = 9PB^2$$

$$\Rightarrow (h - 5)^2 + k^2 = 9[(h + 5)^2 + k^2]$$

$$\Rightarrow 8h^2 + 8k^2 + 100h + 200 = 0$$

$\therefore$  Locus

$$x^2 + y^2 + \left(\frac{25}{2}\right)x + 25 = 0$$

$$\therefore c \equiv \left(\frac{-25}{4}, 0\right)$$

$$\therefore r^2 = \left(\frac{-25}{4}\right)^2 - 25$$

$$= \frac{625}{16} - 25$$

$$= \frac{225}{16}$$

$$\therefore 4r^2 = 4 \times \frac{225}{16} = \frac{225}{4} = 56.25$$

After Round of  $4r^2 = 56$