

NCERT/CBSE MATHEMATICS CLASS 12 textbook

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MISCELLANEOUS EXERCISES

Answers to NCERT/CBSE MATH (Class XII) textbook

Chapter 6

APPLICATIONS OF DERIVATIVES

4. Find the equation of the normal to curve $x^2 = 4y$ which passes through the point (1, 2).

$$4.x^2 = 4y$$

$$\Rightarrow 2x = 4 \frac{dy}{dx}$$

$$\Rightarrow x = 2 \frac{dy}{dx}$$

$$\Rightarrow \frac{dy}{dx} = \frac{x}{2}$$

The point is (1,2)

$$\Rightarrow \left. \frac{dy}{dx} \right|_{x=1} = \left. \frac{x}{2} \right|_{x=1} = \frac{1}{2}$$

$$\Rightarrow \text{Slope of tangent} = \frac{1}{2}$$

$$\Rightarrow \text{Slope of normal} = -2$$

Equation of normal :

$$y-2=-2(x-1)$$

$$\Rightarrow y-2=-2x+2$$

$$\Rightarrow y=-2x+4$$

$$\Rightarrow y + 2x - 4 = 0$$

Please do not copy the answer given here

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