

Centum Preparation 100 Days plan class 12 Maths

| Q.No. | DAY - 66 |
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| 414 | <p>Example 10.1</p> <p>Determine the order and degree (if exists) of the following differential equations:</p> <p>(iii) $\frac{d^2 y}{dx^2} + 3\left(\frac{dy}{dx}\right)^2 = x^2 \log\left(\frac{d^2 y}{dx^2}\right)$</p> <p>(iv) $3\left(\frac{d^2 y}{dx^2}\right) = \left[4 + \left(\frac{dy}{dx}\right)^2\right]^{\frac{3}{2}}$ (v) $dy + (xy - \cos x)dx = 0$</p> |
| 415 | <p>EXERCISE 10.1</p> <p>1. For each of the following differential equations, determine its order, degree (if exists)</p> <p>(ii) $\left(\frac{d^3 y}{dx^3}\right)^{\frac{2}{3}} - 3\frac{d^2 y}{dx^2} + 5\frac{dy}{dx} + 4 = 0$ (iii) $\left(\frac{d^2 y}{dx^2}\right)^2 + \left(\frac{dy}{dx}\right)^2 = x \sin\left(\frac{d^2 y}{dx^2}\right)$</p> <p>(v) $y\left(\frac{dy}{dx}\right) = \frac{x}{\left(\frac{dy}{dx}\right) + \left(\frac{dy}{dx}\right)^3}$ (vii) $\left(\frac{d^2 y}{dx^2}\right)^3 = \sqrt{1 + \left(\frac{dy}{dx}\right)}$</p> <p>(ix) $\frac{d^2 y}{dx^2} + 5\frac{dy}{dx} + \int y dx = x^3$ (x) $x = e^{xy\left(\frac{dy}{dx}\right)}$</p> |
| 416 | <p>Example 10.4</p> <p>Find the differential equation of the family of circles passing through the points $(a, 0)$ and $(-a, 0)$.</p> |
| 417 | <p>Example 10.6</p> <p>Find the differential equation of the family of all ellipses having foci on the x-axis and centre at the origin.</p> |