

Class – 12th

Chapter-8

Subject Maths

Worksheet-36

Application of Derivatives

- Find the slope of the tangent to the curve $y = x^3 - x$.
- Find the slope of the tangent to the curve $y = \frac{x-1}{x-2}$, $x \neq 2$ at $x = 10$.
- Find the point at which the tangent to the curve $y = \sqrt{4x-3} - 1$ has its slope $2/3$.
- Find the equation of all lines having slope 2 and being tangent to the curve $y + \frac{2}{x-3} = 0$.
- Find points on the curve $\frac{x^2}{4} + \frac{y^2}{25} = 1$ at which the tangent are
 - parallel to x -axis
 - parallel to y -axis
- Find the equation of tangent to the curve given by $x = a \sin^3 t$, $y = b \cos^3 t$ at a point where $t = \pi/2$.
- Find the equation of normal to the curve $y = \sin^2 x$ at a point $\left(\frac{\pi}{3}, \frac{3}{4}\right)$.
- Find the equations of the tangent and normal to the given curves at the indicated points:
 - $y = x^2 + 4x + 1$ at $x = 3$
 - $y^2 = 4ax$ at $x = a$
 - $xy = a^2$, at $\left(at, \frac{a}{t}\right)$
 - $y^2 = 4ax$, at $\left(\frac{a}{m^2}, \frac{2a}{m}\right)$