

SELF ASSESSMENT TEST -4**CLASS 10+2**

1. Find the intervals in which the function $f(x) = -2x^3 + 9x^2 - 12x - 30$ is strictly increasing or strictly decreasing.
2. Find the intervals in which the function $f(x) = 2x^3 - 9x^2 + 12x + 30$ is strictly increasing or strictly decreasing.
3. Find the intervals in which the function $f(x) = \sin x + \cos x$, $0 \leq x \leq 2\pi$ is strictly increasing or strictly decreasing.
4. Find the eqn of tangent & normal to the curve $\frac{x^2}{16} + \frac{y^2}{9} = 2$ at $(4, 3)$.
5. Find the eqn of normals to the curve $y = x^3 + 2x + 6$ which are parallel to the line $x + 14y + 4 = 0$.
6. Find the eqn of tangent to the curve $y = x^2 + 2$ at which the slope of tangent is equal to x co-ordinate.
7. Find the eqn of all lines having slope -1 and that are tangents to the curve $y = \frac{1}{x-1}$, $x \neq 1$.