MAT 104

MATRIC NO : 19/MHS01/407

1. $y^2 = 2x^2$ at the point $(1,2)$

Sole

$x_1 = 1$

$y_1 = 2$

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

$\left.\frac{dy}{dx}\right|_{x=1}$ $m = 4$

For equa. of tangent

$y - y_1 = m(x - x_1)$

$y - y_1 = m(x - x_1)$

$y - 2 = 4(x - 1)$

$y - 2 = 4x - 4$

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

$y - 4x - 2 = 0$ equa. of tangent

Equa. of normal

$m_1 m_2 = -1$

$4 m_2 = -1$

$m_2 = -1/4$

$y - y_1 = -1/4 (x - x_1)$

$y - 2 = -1/4 (x - 1)$

$4(y-2) = -1(x - 1)$

$4y - 8 = -x + 1$

$4y - 8 + x - 1 = 0$

$4y - 8 - 1 + x = 0$

$4y - 9 + x = 0$

or $4y + x - 9 = 0$ (equa of normal