

$$\frac{4m_2}{4} = -\frac{1}{4}$$

$$\therefore m_2 = -\frac{1}{4}$$

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

$$y - 2 = -\frac{1}{4}(x - 1)$$

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

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

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

$$4y + x - 9 = 0 \text{ is the equation of the normal}$$

2.  $y = 3x^2 - 2x$  at the point  $(2, 8)$

$$y = 3x^2 - 2x$$

$$\frac{dy}{dx} = 6x - 2$$

$$\left. \frac{dy}{dx} \right|_{x=2} = 6(2) - 2$$

$$\therefore m = 12 - 2 = 10$$

$$m = 10, x_1 = 2, y_1 = 8$$

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

$$y - 8 = 10(x - 2)$$

$$y - 8 = 10x - 20$$