

$$x_1 = -2, y_1 = -5$$

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

$$y + 5 = -1(x + 2)$$

$$y + 5 = -x - 2$$

$$y + x + 5 + 2 = 0$$

$$y + x + 7 = 0$$

$$(b) m, m_2 = -1$$

$$m_2 = 1$$

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

$$y + 5 = 1(x + 2)$$

$$y + 5 = x + 2$$

$$y - x + 3 = 0$$

$$y - x + 3 = 0$$

$$5 \text{ } y = \frac{1}{3}x \text{ at the point } (3, 1/3)$$

Solution

$$\textcircled{a} \frac{dy}{dx} = \frac{\frac{d}{dx} \frac{1}{3}x}{\frac{d}{dx} x} = \frac{x(0) + 1(1)}{x^2} = \frac{1}{x^2}$$

$$\frac{dy}{dx} = \frac{1}{(1)^2} = 1 \quad m = 1$$

$$x_1 = 3, y = \frac{1}{3}$$

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

$$y - \frac{1}{3} = 1(x - 3)$$

$$y - \frac{1}{3} = x - 3$$

$$y - x - \frac{1}{3} + 3 = 0$$

$$y - x + \frac{8}{3} = 0$$

$$\textcircled{b} m, m_2 = -1$$

$$m_2 = -1$$

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

$$y - \frac{1}{3} = -1(x - 3)$$

$$y - \frac{1}{3} = -x + 3$$

$$y + x - \frac{1}{3} - 3 = 0$$

$$y + x - \frac{10}{3} = 0$$