

$$y - 8 + 20 - 10x = 0$$

$$y + 12 - 10x = 0$$

$\therefore y - 10x + 12 = 0$ is the equation of the tangent.
For the equation of the normal

$$m_1 m_2 = -1$$

$$\frac{10}{10} m_2 = -1$$

$$10 \quad 10$$

$$\therefore m_2 = -\frac{1}{10}$$

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

$$y - 8 = -\frac{1}{10}(x - 2)$$

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

$$10y - 80 = -x + 2$$

$$10y - 80 - 2 + x = 0$$

$10y + x - 82 = 0$ is the equation of the normal

3 $y = \frac{x^3}{2}$ at the point $(-1, -\frac{1}{2})$

$$x_1 = -1, y_1 = -\frac{1}{2}$$

Using quotient rule

$$\frac{dy}{dx} = \frac{V \frac{du}{dx} - u \frac{dV}{dx}}{V^2} \quad \text{Let } V = 2, u = x^3$$