

Find  $\frac{dy}{dx}$  & the line tangent to the curve @  
(1,1)

$$13x^7 + 4x^{52}y + y^9 = 18$$

$$91x^6 + \frac{dy}{dx} 4x^{52}y + 9y^8 \frac{dy}{dx} = 0$$

$$91x^6 + (208x^{51}y) + (4x^{52} \cdot \frac{dy}{dx}) + 9y^8 \frac{dy}{dx} = 0$$

$$91x^6 + 208x^{51}y + \frac{dy}{dx}(4x^{52} + 9y^8) = 0$$

$$\frac{91x^6 + 208x^{51}y}{-4x^{52} + 9y^8} = -\frac{(4x^{52} + 9y^8) \frac{dy}{dx}}{-(4x^{52} + 9y^8)}$$

$$\frac{dy}{dx} = \frac{91x^6 + 208x^{51}y}{-4x^{52} + 9y^8}$$

$$m = \frac{dy}{dx}_{(1,1)} = \frac{91 + 208}{-(4+9)} = \frac{299}{-13}$$

$$y - y_1 = \frac{299}{-13}(x - x_1)$$

$$y - y_1 = -\frac{299}{13}(x - x_1)$$

$$\cancel{y} - 1 = -\frac{299}{13}x + \frac{299}{13} + 1$$

$$y = -\frac{299}{13}x + \frac{299}{13} + \frac{13}{13}$$

$$y = -\frac{299}{13}x + \frac{312}{13}$$