

Quiz 11

$$1. \quad xy + y^3 = x^2 + 2x - 1 \Rightarrow$$

$$(a) \quad y + xy' + 3y^2y' = 2x + 2 \Rightarrow$$

$$(x + 3y^2)y' = 2x + 2 - y$$

$$y' = \frac{2x + 2 - y}{x + 3y^2}$$

$$(b) \quad m = \left. \frac{2x + 2 - y}{x + 3y^2} \right|_{(3,2)} = \frac{6 + 2 - 2}{3 + 12} = \frac{6}{15} = \frac{2}{5}$$

$$y - 2 = \frac{2}{5}(x - 3)$$

$$y = \frac{2}{5}x - \frac{6}{5} + 2 = \frac{2}{5}x + \frac{4}{5}$$