

Math 151 - Quiz 2

February 3, 2016

Name key

Score _____

Show all work to receive full credit. Supply explanations when necessary.

1. (3 points) Write in functional form as a function of x . Then state the domain and range.

$$2x - 4y = 8$$

$$2x = 8 + 4y$$

$$2x - 8 = 4y$$

THIS IS A
NON CONSTANT
LINEAR FUNCTION.

$$\text{Domain} = \text{Range} \\ = (-\infty, \infty)$$

$$y = \frac{2x - 8}{4} = \frac{x - 4}{2}$$

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

2. (4 points) Let $f(x) = 2x^2 + 7$. Evaluate and simplify the difference $f(x+h) - f(x)$.

$$f(x+h) - f(x) = [2(x+h)^2 + 7] - [2x^2 + 7]$$

$$= 2(x^2 + 2xh + h^2) + 7 - 2x^2 - 7$$

$$= 2x^2 + 4xh + 2h^2 + 7 - 2x^2 - 7$$

$$= 4xh + 2h^2$$

3. (3 points) Find the linear function whose graph is the straight line that passes through the points (2, 6) and (3, 8).

$$m = \frac{8-6}{3-2} = \frac{2}{1} = 2$$

$$f(x) = 2x + b$$

$$f(2) = 6 \Rightarrow 2(2) + b = 6$$

$$4 + b = 6$$

$$b = 2$$

$$f(x) = 2x + 2$$