

Homework

Directions: Please answer all questions. Make sure you **SHOW ALL WORK!**

Multiple Choice

Identify the choice that best completes the statement or answers the question.

1. Which function has the greatest rate of change.

- a. $y = -5x$
- b. $\{(-1, -2), (1, 2), (3, 6), (5, 10), (7, 14)\}$
- c. A fitness club charges a \$200 membership fee plus monthly fees of \$25.
- d. $y = 3x - 16$

a) $y = -5x$
R.O.C. = -5

b) $(-1, -2) (1, 2)$
 $x_1, y_1 \quad x_2, y_2$
 $m = \frac{y_2 - y_1}{x_2 - x_1}$
 $m = \frac{2 - (-2)}{1 - (-1)}$
 $m = \frac{4}{2}$
 $m = 2 \quad R.O.C. = 2$

c) $y = 25x + 200$
R.O.C. = 25

d) $y = 3x - 16$
R.O.C. = 3

2. Which function has the least rate of change.

- a. $y = 3x - 16$
- b.

x	0	1	2	3	4
y	3	4	5	6	7
- c. Helga earns \$12 per hour working at a restaurant.
- d. $\{(-2, -4), (0, 0), (2, 4), (4, 8), (6, 12)\}$

a) $y = 3x - 16$
R.O.C. = 3

b) $(0, 3) (1, 4)$
 $x_1, y_1 \quad x_2, y_2$
 $m = \frac{y_2 - y_1}{x_2 - x_1}$
 $m = \frac{4 - 3}{1 - 0}$
 $m = \frac{1}{1}$
 $m = 1$
R.O.C. = 1

c) $y = 12x$
R.O.C. = 12

d) $(-2, -4) (0, 0)$
 $x_1, y_1 \quad x_2, y_2$
 $m = \frac{y_2 - y_1}{x_2 - x_1}$
 $m = \frac{0 - (-4)}{0 - (-2)}$
 $m = \frac{4}{2}$ *Turn Over*
 $m = 2$
R.O.C. = 2

3. Which best compares the slopes and y-intercepts of the linear functions f and g , where $f = \frac{1}{3}x + 3$ and g is shown in the table?

x	0	1	2	3
$g(x)$	3	6	9	12

- a. The slope of f is less than the slope of g . The y-intercept of f is greater than the y-intercept of g .
- b. The slope of f is greater than the slope of g . The y-intercept of f is the same as the y-intercept of g .
- c. The slope of f is the same as the slope of g . The y-intercept of f is less than the y-intercept of g .
- d. The slope of f is less than the slope of g . The y-intercept of f is the same as the y-intercept of g .

f

$$f = \frac{1}{3}x + 3$$

$$m = \frac{1}{3}$$

$$B = 3$$

g

$$m = 3$$

$$B = 3$$

y-intercept

$(0, 3) \quad (1, 6)$

$x_1, y_1 \quad x_2, y_2$

$$m = \frac{y_2 - y_1}{x_2 - x_1}$$

$$m = \frac{6 - 3}{1 - 0}$$

$$m = \frac{3}{1}$$

$$m = 3$$

Essay

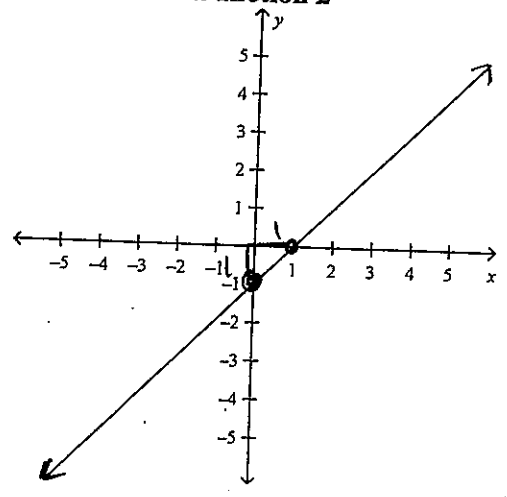
1. Compare the slopes of the two given functions. Justify your reasoning.

Function 1

$$y = 1x + 1$$

$$m = 1$$

Function 2



$$m = \frac{\text{rise}}{\text{run}}$$

$$m = \frac{1}{1}$$

$$m = 1$$

Function 1 and Function 2 have the same slope of 1