

NAME:

DATE:

A2.Q1.BERMEL:

FUNCTIONS

(DAY F3)

NOTES

#1. Consider the function $f(x) = \begin{cases} x+5 & \text{if } x \geq 0 \\ 2x+6 & \text{if } x < 0 \end{cases}$

Evaluate each A - F

A. $f(3) = (3) + 5$

$$f(3) = \boxed{8}$$

B. $f(8) = (8) + 5$

$$f(8) = \boxed{13}$$

C. $f(-7) = 2(-7) + 6$

$$= -14 + 6$$

$$f(-7) = \boxed{-8}$$

D. $f(-4) = 2(-4) + 6$

$$= -8 + 6$$

$$f(-4) = \boxed{-2}$$

E. $f(-2) = 2(-2) + 6$

$$= -4 + 6$$

$$f(-2) = \boxed{2}$$

F. $f(5) = (5) + 5$

$$f(5) = \boxed{10}$$

G. Find the "y-intercept". Show the function notation that leads to this answer.

$$y = \boxed{5}$$

$$f(0) = (0) + 5$$

$$f(0) = 5$$

H. Is $x = -3$ a zero of the function? Show.

$\boxed{\text{Yes}}$

$$f(-3) = 2(-3) + 6$$

$$= -6 + 6$$

$$f(-3) = 0$$

I. Is $x = -5$ a zero of the function? Show.

$\boxed{\text{No}}$

$$f(-5) = 2(-5) + 6$$

$$= -10 + 6$$

$$f(-5) = -4$$

#2. Consider the function $g(x) = \begin{cases} x-1 & \text{if } x \geq -2 \\ -x-3 & \text{if } x < -2 \end{cases}$

Evaluate each A - F

A. $g(3) = (3) - 1$

$$g(3) = 2$$

B. $g(8) = (8) - 1$

$$g(8) = 7$$

C. $g(-7) = -(-7) - 3$

$$= 7 - 3$$

$$g(-7) = 4$$

D. $g(-1) = (-1) - 1$

$$g(-1) = -2$$

E. $g(-2) = (-2) - 1$

$$g(-2) = -3$$

F. $g(-10) = -(-10) - 3$

$$= 10 - 3$$

$$g(-10) = 7$$

G. Find the "y-intercept". Show the function notation that leads to this answer.

$$y = -1$$

$$g(0) = (0) - 1$$

$$g(0) = -1$$

H. Is $x=1$ a zero of the function? Show.

$$\text{yes}$$

$$g(1) = (1) - 1$$

$$g(1) = 0$$

I. Is $x=-3$ a zero of the function? Show.

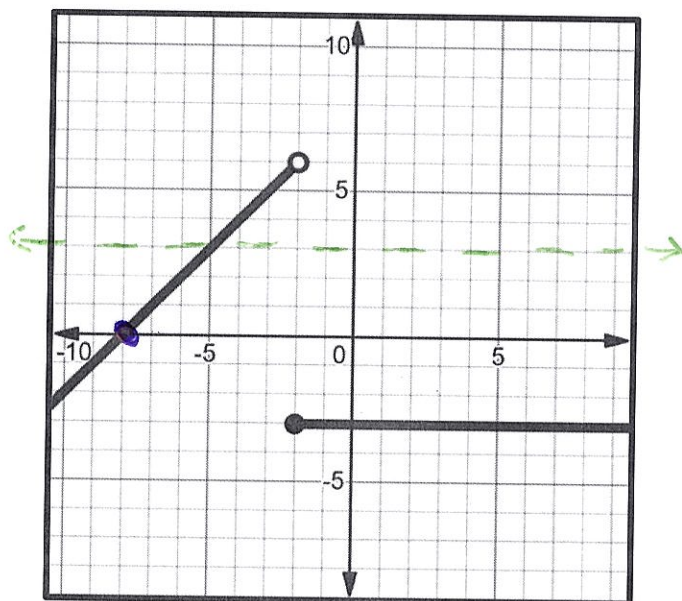
$$\text{yes}$$

$$g(-3) = -(-3) - 3$$

$$= 3 - 3$$

$$g(-3) = 0$$

#3. Consider the graph of the function $y = f(x)$ shown below.



Evaluate each A - F

A. $f(3) = -3$

B. $f(8) = -3$

C. $f(-7) = 1$

D. $f(-4) = 4$

E. $f(-2) = -3$

F. $f(5) = -3$

*tricky

G. Find the "y-intercept". Show the function notation that leads to this answer.

$y = -3$

$f(0) = -3$

H. Find the zero of the function. Show the function notation that leads to this answer.

$x = -8$

$f(-8) = 0$

I. If $f(x) = 3$ what is the values of x ? Support with notation.

$x = -5$

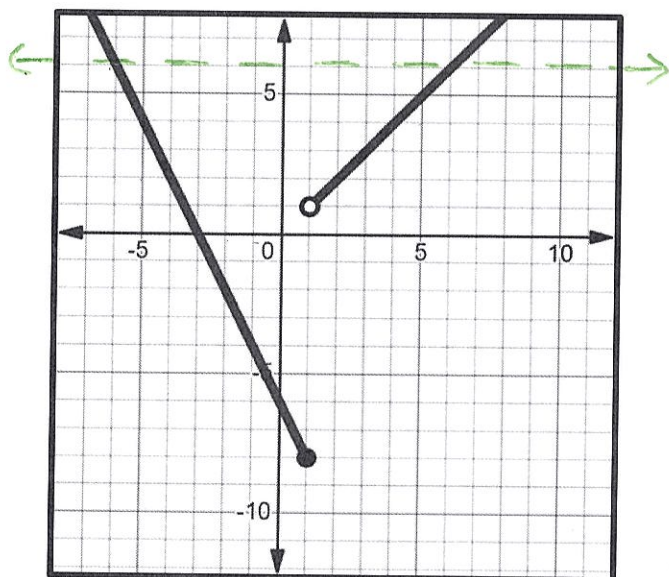
$f(-5) = 3$

J. The function is decreasing on what interval?

K. The function is constant on what interval?

L. The function is increasing on what interval?

#4. Consider the graph of the function $y = g(x)$ shown below.



Evaluate each A - F

A. $g(3) = 3$

B. $g(4) = 4$

C. $g(-5) = 4$

D. $g(-1) = -4$

E. $g(1) = -8$

F. $g(5) = 5$

G. Find the "y-intercept". Show the function notation that leads to this answer.

$$y = -6$$

$$g(0) = -6$$

H. Find the zero of the function. Show the function notation that leads to this answer.

$$x = -3$$

$$g(-3) = 0$$

I. If $f(x) = 6$ what are the values of x ? Support with notation.

$$x = -6, x = 6$$

$$g(-6) = 6$$

$$g(6) = 6$$

J. The function is decreasing on what interval?

K. The function is constant on what interval?

L. The function is increasing on what interval?