

NAME:

DATE:

A2.Q1.BERMEL:

FUNCTIONS

(DAY F2)

NOTES

a Function is a special relation for which each input_x has exactly one output_y

$$f(x) = y$$

What's the difference between finding a "y-intercept" and finding "a zero"?

a zero

you know y

$$y = 0$$

$$f(?) = 0$$

you are finding x

y-intercept

you know x

$$x = 0$$

$$f(0) = ?$$

you are finding y

input $x \rightarrow \boxed{f(x)} \rightarrow$ output y

let $y = f(x)$

1. Consider the function: $f(x) = 4 - 2x - 2x^2$

A. Find $f(1)$

$$\begin{aligned} f(1) &= 4 - 2(1) - 2(1)^2 \\ &= 4 - 2(1) - 2(1) \\ &= 4 - 2 - 2 \\ &= 2 - 2 \end{aligned}$$

B. Find $f(2)$

$$f(1) = \boxed{0}$$

C. Find $f(-3)$

D. Find the "y-intercept" of the function.

$$\boxed{y=4}$$

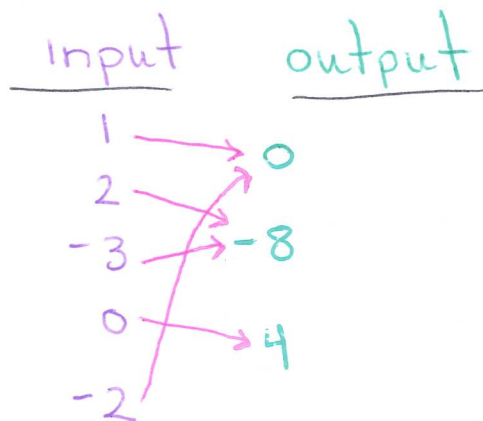
$$\begin{aligned} f(0) &= 4 - 2(0) - 2(0)^2 \\ f(0) &= \boxed{4} \end{aligned}$$

E. Is $x = -2$ also a zero of the function? Show.

$\boxed{\text{yes}}$

$$\begin{aligned} f(-2) &= 4 - 2(-2) - 2(-2)^2 \\ &= 4 - 2(-2) - 2(4) \\ &= 4 + 4 - 8 \\ &= 8 - 8 \\ f(-2) &= \boxed{0} \end{aligned}$$

F. Write each of the results of A, B, C, D, and E in terms of their input/output relationship.



G. Write each of the results of A, B, C, D and E in a table of values.

x	y
1	0
2	-8
-3	-8
0	4
-2	0

input $x \rightarrow \boxed{f(x)} \rightarrow \text{output } y$

2. Consider the function: $y = f(x)$ with a partial table of values shown here.

x	y
-2	-7
1	2
0	1
-1	0
2	9
4	65

* a zero

* y-intercept

A. Find $f(1) = 2$

B. Find $f(2) = 9$

C. Find $f(-2) = -7$

D. Find the "y-intercept" of the function. Show.

$$\boxed{y = 1}$$

$$f(0) = 1$$

* you show that zero is plugged in.

E. What is the zero of the function? Show work.

$$\boxed{x = -1}$$

$$f(-1) = 0$$

F. If $f(x) = -7$, what is the value of x ?

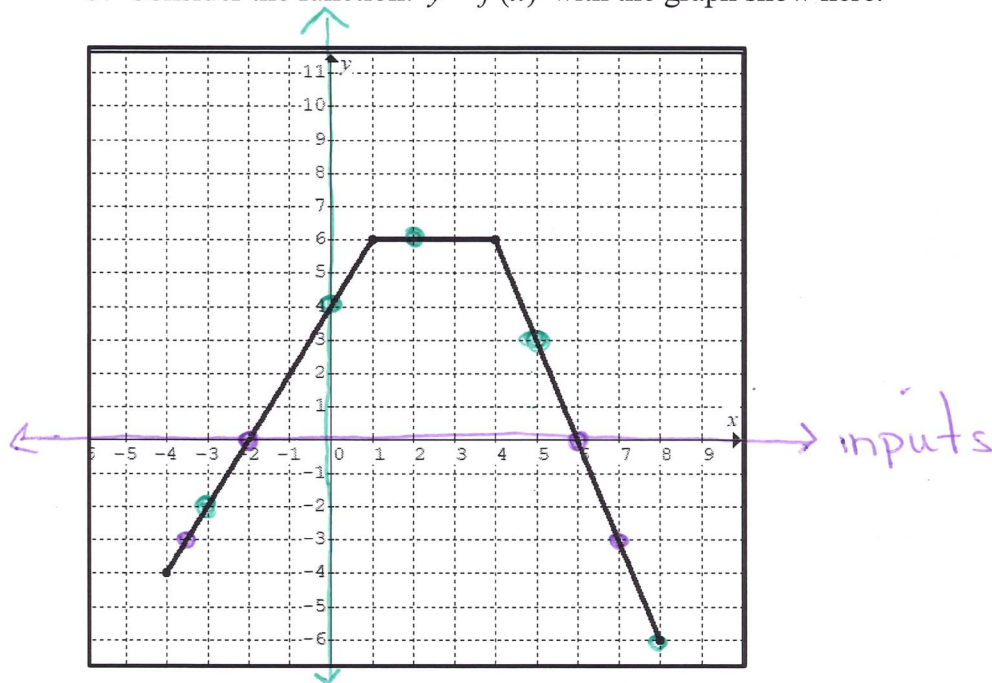
$$\boxed{x = -2}$$

$$f(-2) = -7$$

input x

output y

3. Consider the function: $y = f(x)$ with the graph show here.



A. Find $f(5) = \boxed{3}$

B. Find $f(2) = \boxed{6}$

C. Find $f(-3) = \boxed{-2}$

D. Find $f(8) = \boxed{-6}$

E. If $f(x) = -3$ what are the values of x ?

$x = -3.5$, $x = 7$

$f(-3.5) = -3$

$f(7) = -3$

F. Find the "y-intercept" of the function.

$y = 4$

$f(0) = 4$

G. What are the zeros of the function?

$x = -2$, $x = 6$

$f(-2) = 0$

$f(6) = 0$

H. Write each of the results of C, E, and F in terms of their input/output relationship.

input output

$-3 \rightarrow -2$

$-3.5 \rightarrow -3$

$7 \rightarrow -3$

$0 \rightarrow 4$