

UNIT 1: FUNCTIONS **GRAPH OF A FUNCTION**

Name _____ Date: _____ Period: _____

OBTAINING INFORMATION FROM THE GRAPH OF A FUNCTION:

Finding Values: Find y when x = ...

a.) $f(0) = 3$
 $f(x) = \frac{y}{x}$
 when x is 0, what is y
 $(0, 3)$

b.) $f(-2) = -1$
 $f(x) = \frac{y}{x}$
 when x is -2, what is y-value
 $(-2, -1)$

c.) $f(4) =$

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c.) $f(4) =$

Positive or Negative: Find the SIGN of y when x = ...

a.) Is $f(-5)$ positive or negative?
 $f(x)$ is positive
 x is -5... $f(-5) > 0$

b.) Is $f(0)$ positive or negative?
 $f(x)$ is negative
 x = 0... $f(0) < 0$

c.) Is $f(1)$ positive or negative?

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graphs

For what values of x is $f(x)$...

a.) For what values of x is $f(x) < 0$?
on the interval
 negative $[-7, -1) \cup (4, 6]$

b.) For what values of x is $f(x) = 0$?
 when is $y = 0$? $\{-7, -1, 4\}$

c.) For what values of x is $f(x) > 0$?
on the interval
 $(-1, 4)$

d.) For what values of x is $f(x) = 4$?
 $f(x) = y$ $(-4, 4)$ undefined

d.) For what values of x is $f(x) = -3$?
 $f(x) = y$ $(-4, -3)$ $x = -4$

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d.) For what values of x is $f(x) = -3$?

Domain and Range: x and y values of the function

a.) What is the domain of f ?
x-values
 left, right
 $[-7, \infty)$

b.) What is the range of f ?
y-values
 down, up
 $[-3, \infty)$

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graphs

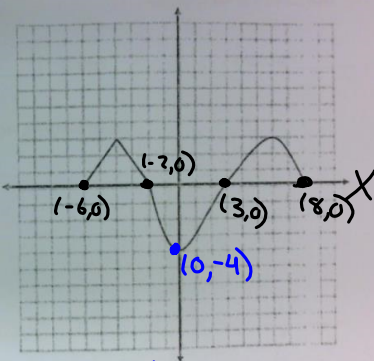
Intercepts: x-intercept (when $y = 0$)
y-intercept (when $x = 0$)

"cross over"

a.) What are the x-intercepts?
crosses x-axis
 $(-6, 0)$ $(-2, 0)$
 $(3, 0)$ $(8, 0)$

a.) What are the y-intercepts?
crosses y-axis
 $(0, -4)$

Always write as a point

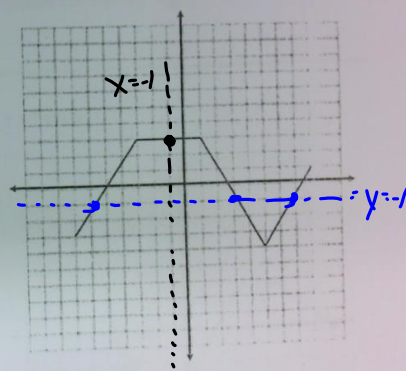


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Intersecting Lines:

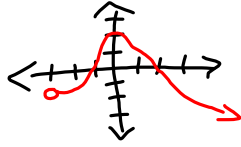
a.) How often does the line $y = -1$ intersect the graph?
three

a.) How often does the line $x = -1$ intersect the graph?
once



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graphs

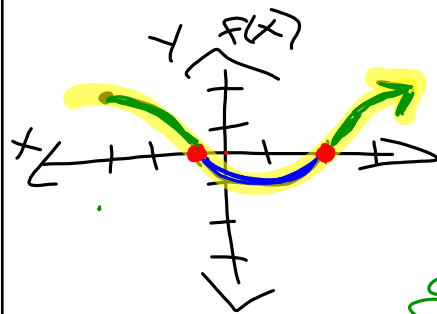


In General

1. If $f(3) = -4$, this means the graph passes through the point _____.
2. If $f(-9) = 8$, this means the graph passes through the point _____.
3. If $f(x) = 0$ at the points $(-2, 3, 8)$, then the x-intercepts are _____.
4. Sketch a graph that has all of the properties in 1 - 3.
5. Sketch any graph in which $f(x) > 0$ on the intervals $(-5, 3) \cup (2, 5)$.
6. In your graph from #5, when is $f(x) < 0$?

1. Is the graph a function? Why or why not?
2. Find $f(0)$ and $f(2)$.
3. What is the sign of $f(3)$?
4. State the domain and range.
5. For what values is $f(x) = 0$?
6. For what values is $f(x) < 0$?
7. For what values is $f(x) > 0$?
8. For what values of x is $f(x) = 2$?
9. What is the y-intercept?
10. What are the x-intercepts?
11. How many times does the graph intersect the line $y = -2$?
12. How many times does the line $x = -2$ intercept the graph?

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- A) $f(x) = 0$
 $\{-1, 2\}$
- B) $f(x) > 0$
on the intervals
 $\{-3, -1\} \cup (2, \infty)$
- C) $f(x) < 0$
on the interval
 $(-1, 2)$

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graphs

In what situations is it best to use...

- Set Brackets { }

{ } only when listing values

- Parentheses ()

✶

- intervals (isnt included or \pm infinity)
- coordinate point

- Closed Brackets []

- interval (included)

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