

Date: \_\_\_\_\_ Period: \_\_\_\_\_

1. DIRECTIONS: USE THE GRAPH BELOW TO ANSWER PARTS (a) – (n).

a.) Find  $f(0)$  and  $f(-6)$   
 $f(0) = 4$      $f(-6) = 0$

b.) Find  $f(6)$  and  $f(11)$   
 $f(6) = 0$      $f(11)$  does not exist

c.) Is  $f(2)$  positive or negative?  
 positive  $f(2) > 0$

d.) Is  $f(-4)$  positive or negative?  
 positive  $f(-4) > 0$

e.) For what values of  $x$  is  $f(x) = 0$ ?  
 $x = -6, 2.75, 6$

f.) For what values of  $x$  is  $f(x) > 0$ ?  
 on the interval  $(-6, 2.75)$

g.) What is the domain of  $f$ ?  
 $[-7, 6]$

h.) What is the range of  $f$ ?  
 $[-2, 5]$

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d.) Is  $f(-4)$  positive or negative?  
 positive

e.) For what values of  $x$  is  $f(x) = 0$ ?  
 $x = -6, 2.75, 6$

f.) For what values of  $x$  is  $f(x) > 0$ ?  
 on the interval  $(-6, 2.75)$

g.) What is the domain of  $f$ ?  
 $[-7, 6]$

h.) What is the range of  $f$ ?  
 $[-2, 5]$

i.) What are the x-intercepts?  
 the points  $(-6, 0)$ ,  $(2.75, 0)$ , and  $(6, 0)$

j.) What is the y-intercept?  
 the point  $(0, 4)$

k.) How often does the line  $y = \frac{1}{2}$  intersect the graph?  
 twice

l.) How often does the line  $x = 5$  intersect the graph?  
 once

m.) For what values of  $x$  does  $f(x) = 3$ ?  
 $x = -1, 2$

n.) For what values of  $x$  does  $f(x) = -2$ ?  
 $x = 7, 4, 5$

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2. DIRECTIONS: USE THE GRAPH BELOW TO ANSWER PARTS (a) - (n).

a.) Find  $f(-3)$  and  $f(7)$

$f(-3) = 2$     $f(7) = 0$

b.) Find  $f(4)$  and  $f(-5)$

$f(4) = 0$     $f(-5) = 3$

c.) Is  $f(-6)$  positive or negative?

$f(-6) = 0$    zero so neither

d.) Is  $f(-1)$  positive or negative?

$f(-1) > 0$    positive

e.) For what values of  $x$  is  $f(x) = 0$ ?

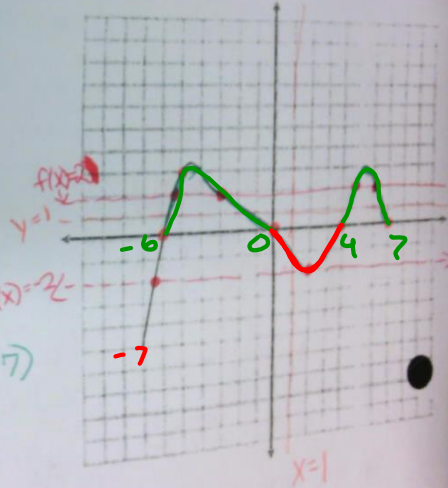
$\{ -6, 0, 4, 7 \}$

f.) For what values of  $x$  is  $f(x) > 0$ ?

on the intervals  $(-6, 0) \cup (4, 7)$   
left, right

g.) What is the domain of  $f$ ?  $[-7, 7]$

h.) What is the range of  $f$ ?  $[-5, 3]$



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For what values of  $x$  is  $f(x) = 0$ ?

$\{ -6, 0, 4, 7 \}$

f.) For what values of  $x$  is  $f(x) > 0$ ?

on the intervals  $(-6, 0) \cup (4, 7)$

g.) What is the domain of  $f$ ?  $[-7, 7]$

h.) What is the range of  $f$ ?  $[-5, 3]$

i.) What are the x-intercepts?

the points  $(-6, 0), (0, 0), (4, 0), (7, 0)$

j.) What is the y-intercept?

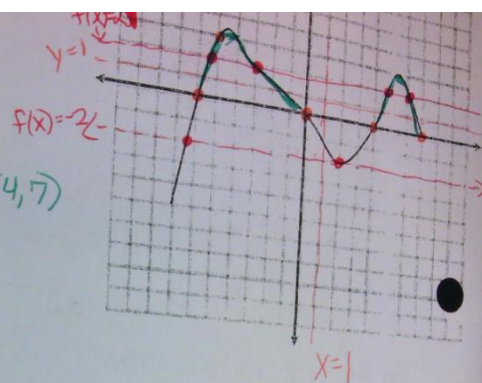
the point  $(0, 0)$

k.) How often does the line  $y = 1$  intersect the graph? 4 times

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

m.) For what values of  $x$  does  $f(x) = 2$ ?  $\{ -5, 2.5, -3, 5, 6 \}$

n.) For what values of  $x$  does  $f(x) = -2$ ?  $\{ -6, 2.5, 2 \}$



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In what situations is it best to use...

- Set Brackets { }

{ } only when listing values

- Parentheses ( )

✱

• intervals (is it included or  $\pm$  infinity)  
• coordinate point

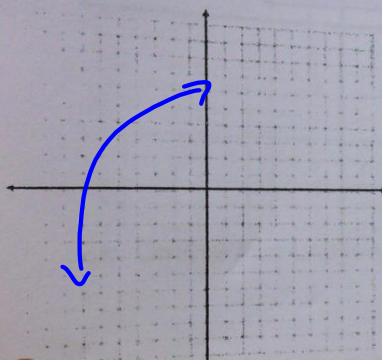
- Closed Brackets [ ]

• interval (included)

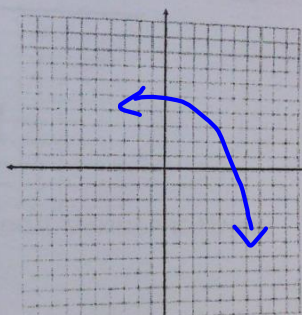
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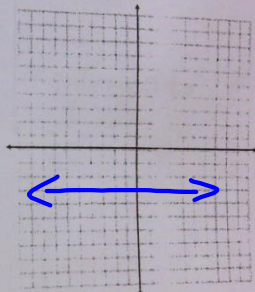
**INCREASING:**  
RISING (+ SLOPE)



**DECREASING:**  
FALLING (- SLOPE)

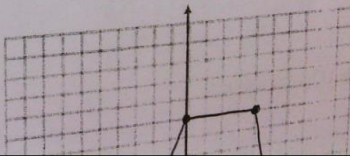


**CONSTANT:**  
HORIZONTAL (SLOPE = 0)



Ex. FOR WHAT VALUES OF X IS THE FUNCTION:

a.) INCREASING?



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Ex. FOR WHAT VALUES OF X IS THE FUNCTION:

a.) INCREASING?  
*on the interval  $(-4, 0)$*

b.) DECREASING?  
*on the intervals  $(-7, -4) \cup (4, 8)$*

c.) CONSTANT?  
*on the interval  $(0, 4)$*

*listed changing parts on graph*

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Ex. FOR WHAT VALUES OF X IS THE FUNCTION:

a.) INCREASING?  
*on the interval  $(-\infty, -2) \cup (3, \infty)$*

b.) DECREASING?  
*N/A*

c.) CONSTANT?  
*on the interval  $(-2, 3)$*

Ex. FOR WHAT VALUES OF X IS THE FUNCTION:

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EX. FOR WHAT VALUES OF X IS THE FUNCTION:

a.) INCREASING?

on the interval  $(-2, 3)$

b.) DECREASING?

on  $(3, 5)$

c.) CONSTANT?

on the intervals  $(-7, -2)$  and  $(5, 9)$

