Unit 2 6.2 Function Notation and Evaluating Functions **Name: _____**

Objective: Understand function notation and how to evaluate in function notation.

Although you're familiar with x and y, "function notation" uses x and $f(x)$

If the equation is a function, it can be rewritten: $y = -\frac{1}{2}x + 5$ → $f(x) = -\frac{1}{2}x + 5$

$f(x), g(x), h(x)$ …

- is the same as _____
- means that the relation is a _____
- gives the equation a _____

Example 1: $f(-5)$ means to plug _____ in for _____ and simplify.

$$f(x) = -3x + 7$$
$$f(-5) = -3(-5) + 7$$
$$f(-5) = 15 + 7$$
$$f(-5) = 22$$
$$(-5,22)$$

Example 2: $f(x) = 28$ means plug _____ in for _____ and solve for _____.

$$f(x) = -3x + 7$$
$$28 = -3x + 7$$
$$21 = -3x$$
$$-7 = x$$
$$(-7,28)$$

1. Evaluate the following expressions given the functions below:

$\boldsymbol{g(x) = -3x + 1}$ $\boldsymbol{f(x) = x^2 + 7}$ $\boldsymbol{h(x) = \frac{12}{x}}$ $\boldsymbol{j(x) = 2x + 9}$

a. $g(10) =$ **b.** $f(3) =$ **c.** $h(-2) =$

d. $j(7) =$ **e.** $h(36) =$ **f.** $f(-4) =$

h. Find x if $g(x) = 16$ **i.** Find x if $j(x) = -3$ **j.** Find x if $f(x) = 23$

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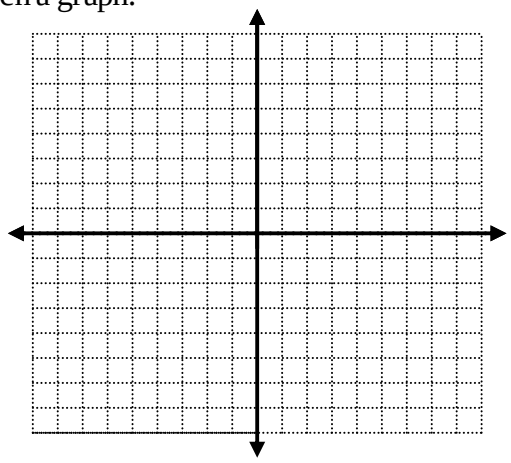
2. Given $f(x) = -2x + 1$ Fill in the table and then sketch a graph.

x	$f(x)$
-3	
0	
2	
3	
	-9



Example 1: $f(x) = 2x - 6$

Complete the table of values.

x	$f(x)$
-2	
0	
1	
-1	
4	

a. $f(-1) =$_____

b. If $f(x) = -10$ then $x =$_____

Example 2: $f(x) = x^2 - 2x - 1$

Complete the table of values.

x	$f(x)$
-1	
0	
1	
2	
3	

a. $f(2) =$_____

b. If $f(x) = -2$ then $x =$_____

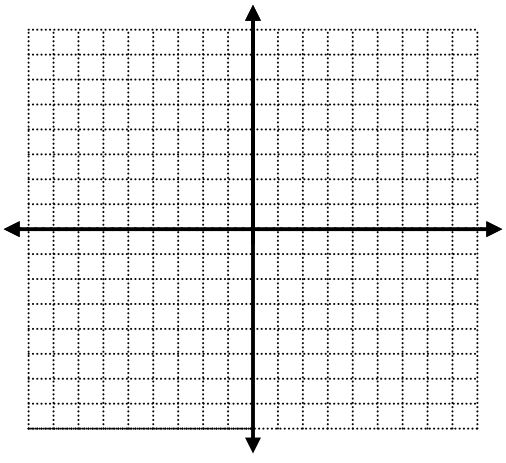
3. Translate the following statements into coordinate points, then plot them!

a. $f(-1) = 1 \rightarrow$_____

b. $f(2) = 7 \rightarrow$_____

c. $f(-5) = -7 \rightarrow$_____

d. $f(0) = 3 \rightarrow$_____



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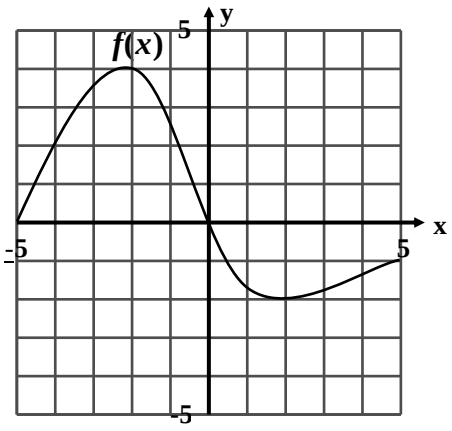
4. Given this graph of the function f(x):



Find:

a. $f(-4) =$ _____ **b.** $f(0) =$ _____

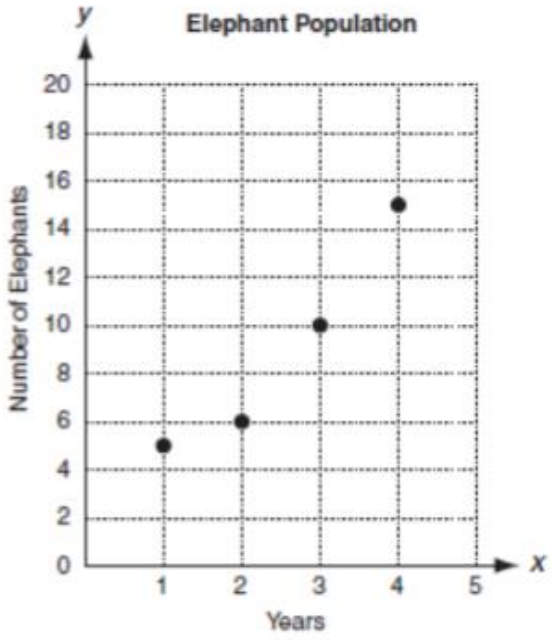
c. $f(5) =$ _____ **d.** $f(-5) =$ _____

e. x when $f(x) = 4$ $x =$_____ **f.** x when $f(x) = -2$ $x =$_____

Use the graph below to answer questions 5-8.
A conservation group has been working to increase the population of a herd of Asian elephants. The graph shows the results of their efforts. Select the correct answer.

5. Which relation represents the information in the graph?

A {(1, 4.5), (2, 6), (3, 10), (4, 14.5)}
B {(1, 5), (2, 6), (3, 10), (4, 15)}
C {(4.5, 1), (6, 2), (10, 3), (14.5, 4)}
D {(5, 1), (6, 2), (10, 3), (15, 4)}



6. What is the range of the relation shown in the graph?

A {0, 1, 2, 3, 4, 5}
B {1, 2, 3, 4}
C {4.5, 6, 10, 14.5}
D {5, 6, 10, 15}

7. What is $f(2)$?_____

8. What does $f(2)$ represent in the context of the problem?

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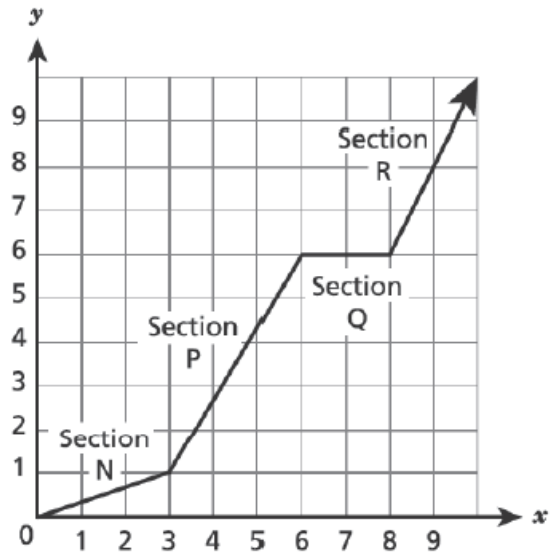
Just for Fun!

9. The graph of a function is shown below.



Which statement is true about a section of the graph?

A In Section N, the function is linear and decreasing.

B In Section P, the function is linear and increasing.

C In Section Q, the function is nonlinear and decreasing.

D In Section R, the function is nonlinear and increasing.

10. Which statement **best** explains whether these ordered pairs represent a function?

$(-4, 2), (6, 7), (-8, 3), (9, 10), (12, 14), (6, 9)$

A The ordered pairs represent a function because no output values are repeated.

B The ordered pairs represent a function because each output value is greater than each input value.

C The ordered pairs do not represent a function because one input value has two different output values.

D The ordered pairs do not represent a function because the difference between the input and output of each ordered pair is not the same.