

Name: \_\_\_\_\_

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

**Unit 1 Skill Assessment**

**MM1A1a**

- What is  $f(5)$  for the function  $f(x) = x^2 + 3$ ?
- Match the function with the correct graph and table.

a)  $f(x) = 3x + 2$   
 table \_\_\_\_\_  
 graph \_\_\_\_\_

b)  $g(x) = -\frac{1}{3}x + 1$   
 table \_\_\_\_\_  
 graph \_\_\_\_\_

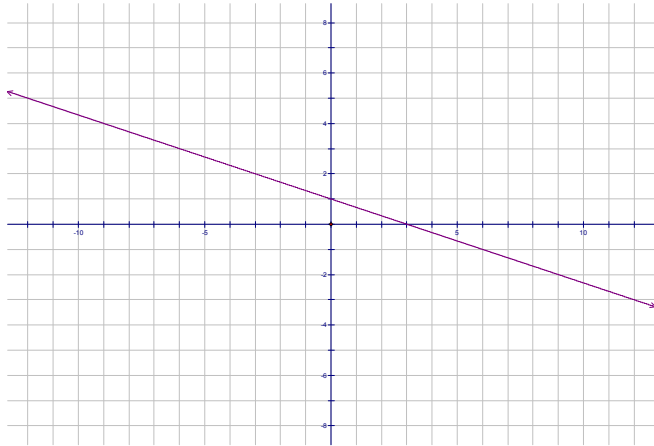
i

Input	Output
0	1
3	0
6	-1
9	-2

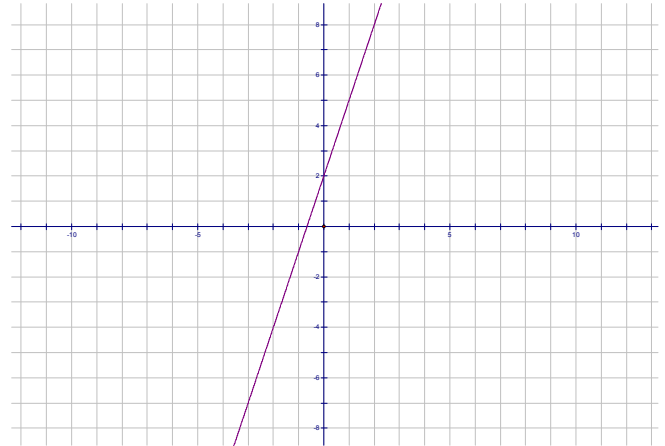
ii

Input	Output
0	2
3	11
6	20
9	29

AA



BB



- If  $f(x) = x + 5$ , then  $f(-1) = 4$ ,  $f(0) = 5$ , and  $f(1) = 6$ . Express this function using 2 of the 5 remaining representations. (Extra points will be given for a correct verbal model.)

**MM1A1b**

- Fill in the chart below by matching the Parent Graph for each family of functions.

Parent Function	Graph
$f(x) = x^3$	
$f(x) = 1/x$	
$f(x) =  x $	
$f(x) = x^2$	
$f(x) = x$	
$f(x) = \sqrt{x}$	

a.

b.

c.

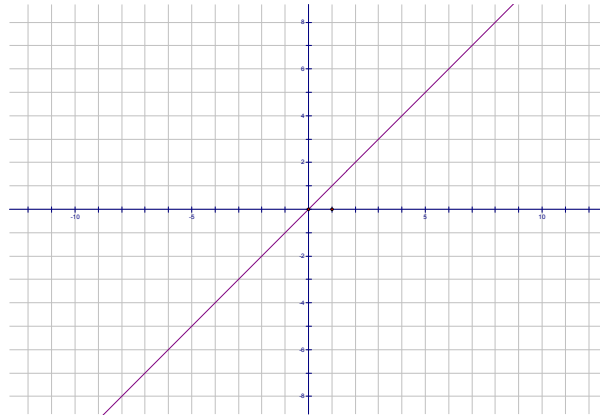
d.

e.

f.

**MM1A1c**

5. Describe how the graph of  $f(x) = x^2$  could be transformed to form the graph of  $h(x) = x^2 + 7$ .
6. Below is the graph of  $f(x) = x$ . SKETCH the result of a vertical stretch of this graph to form  $h(x) = x - 3$ .



7. Write a function that represents a vertical stretch AND a reflection over the x-axis for the parent function  $f(x) = |x|$ .

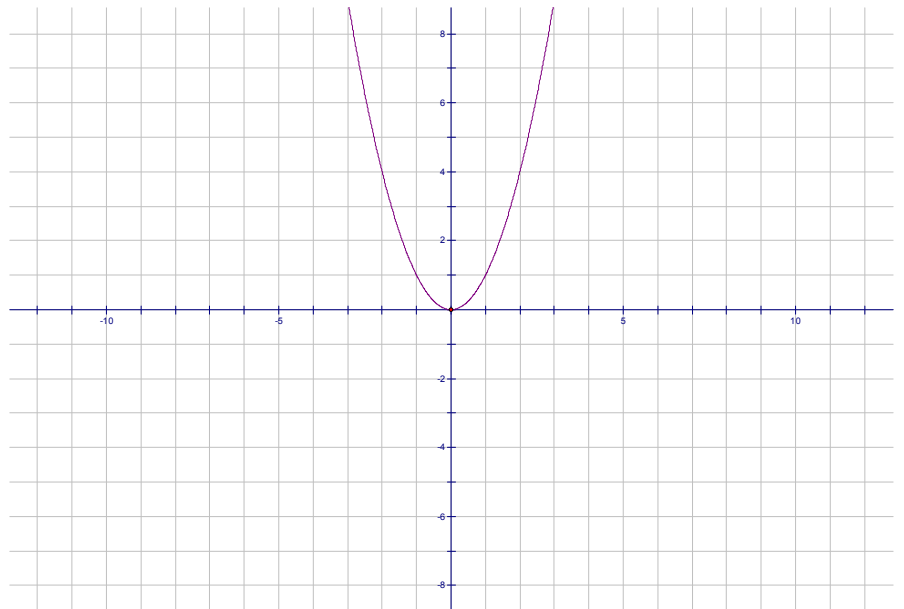
**MM1A1d,h**

8. The set of order pairs below represents a function:  
 $\{(5, -4), (3, -7), (1, -8), (-1, -5), (-3, -4)\}$

What is the domain and range of this function?

9. Identify the following using the graph below:

- Domain \_\_\_\_\_
- Range \_\_\_\_\_
- Maximum \_\_\_\_\_
- Minimum \_\_\_\_\_
- Interval of increase \_\_\_\_\_
- Interval of decrease \_\_\_\_\_
- Right end behavior \_\_\_\_\_
- Left end behavior \_\_\_\_\_
- Zeros / x-intercepts \_\_\_\_\_
- Symmetry \_\_\_\_\_
- Even/Odd/Neither \_\_\_\_\_



Are the following functions even, odd, or neither? Why or why not?

10.  $f(x) = 4|x|$

11.  $g(x) = x^3 - 9$

**MM1A1e**

Matt is buying hats. The company tells him that if he orders between 50 and 150 hats, they will cost \$7 each. The company also tells him that there will be a one-time fee of \$35. Let  $x$  represent the number of hats ordered and  $C(x)$  be the cost of the hats.

12. Write a function for Matt's cost of ordering hats.

13. Fill in the following table:

$x$	50	100	150
$C(x)$			

14. Is it possible to find  $C(200)$ ? If so what is the value? If not, why?

**MM1A1f**

15. Finish the table below. Write the function,  $g(n)$ , for the sequence below.

$n$	1	2	3	4	5	6
$g(n)$	1	4	9			

$g(n) =$

16. What is the domain and range for the sequence above?

17. When dealing with sequences, the domain corresponds to the \_\_\_\_\_ and the range corresponds to the \_\_\_\_\_.

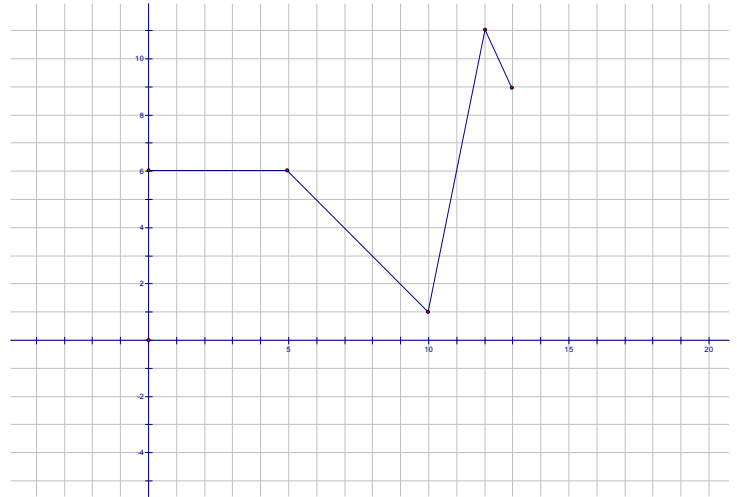
**MM1A1g**

18. The graph below shows the distance a runner ran over a course of 13 minutes.

On what interval is the rate of change positive?

On what interval is the rate of change negative?

On what interval is the rate of change zero?



19. How does the rate of change for the function  $f(x) = 5x - 2$  compare to the rate of change for the function  $g(x) = -2x^2$ ?
20. What is the numeric rate of change for the function represented by the table below?

x	f(x)
0	0
1	3
2	6
3	9