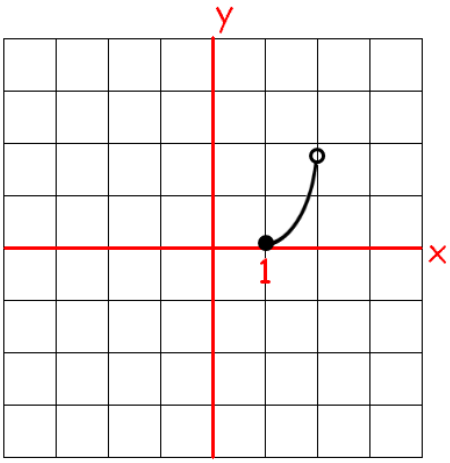
Honors Math II
Ch. 7 day 4 Piecewise Functions

Name_____
Period_____Date_____

Part 1. Directions: Please state the domain of the following functions.

1. {(2,3), (4, 6), (6,12)}
2. $y = 2x + 5$
3. $y = (x + 2)^2 - 4$

4.



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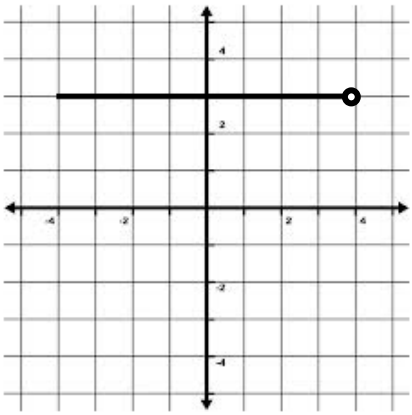

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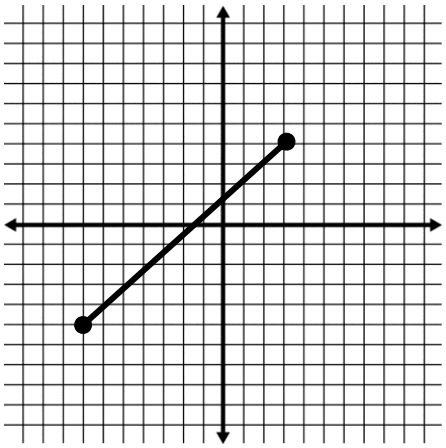

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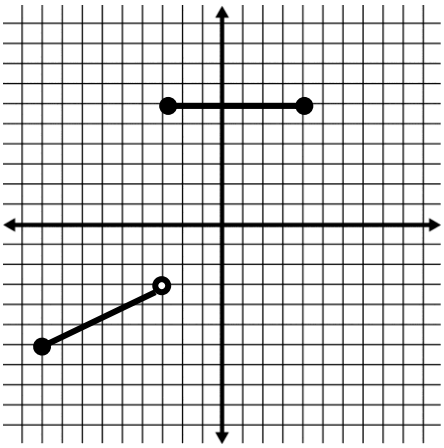

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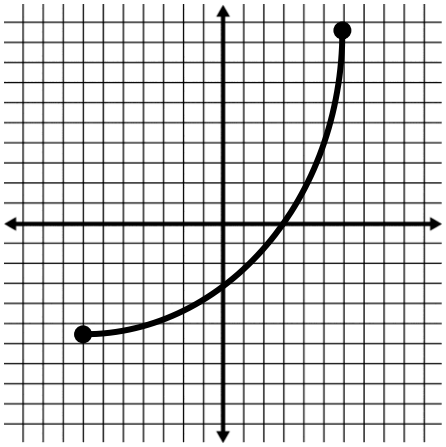

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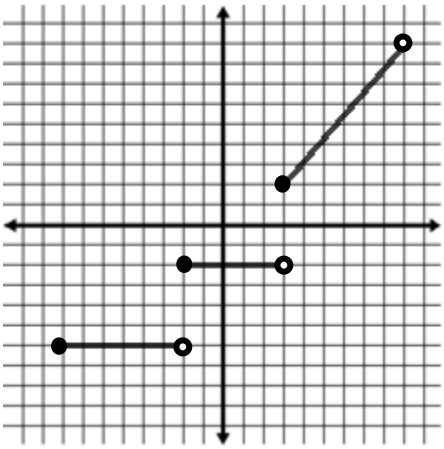


Part II. Find the domain and range for each piecewise function. Then, evaluate the graph at the specified domain value.

1. $f(x) = \begin{cases} x+5 & x < -2 \\ x^2 + 2x + 3 & x \geq -2 \end{cases}$

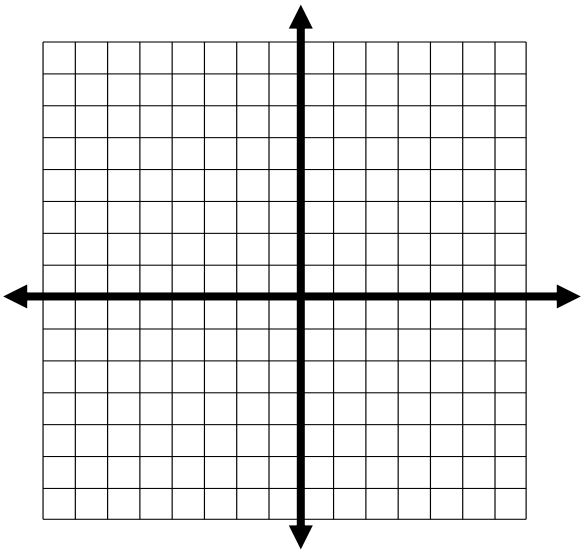
Domain:_____

Range:_____

$f(3) =$

$f(-4) =$

$f(-2) =$



2. $f(x) = \begin{cases} 2x+1 & x \geq 1 \\ x^2 + 3 & x < 1 \end{cases}$

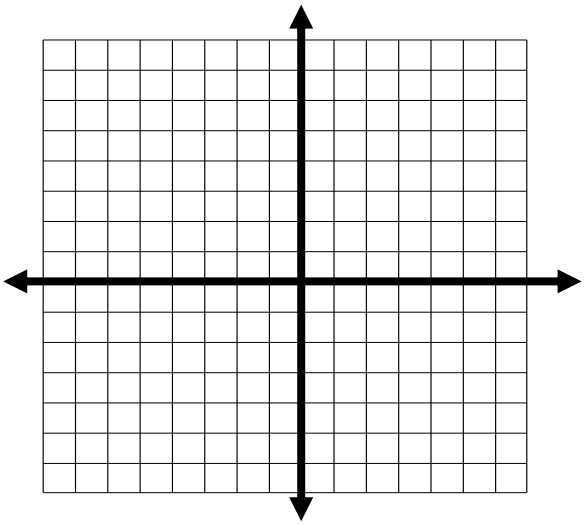
Domain:_____

Range:_____

$f(-2) =$

$f(6) =$

$f(1) =$



3. $f(x) = \begin{cases} -2x+1 & x \leq 2 \\ 5x - 4 & x > 2 \end{cases}$

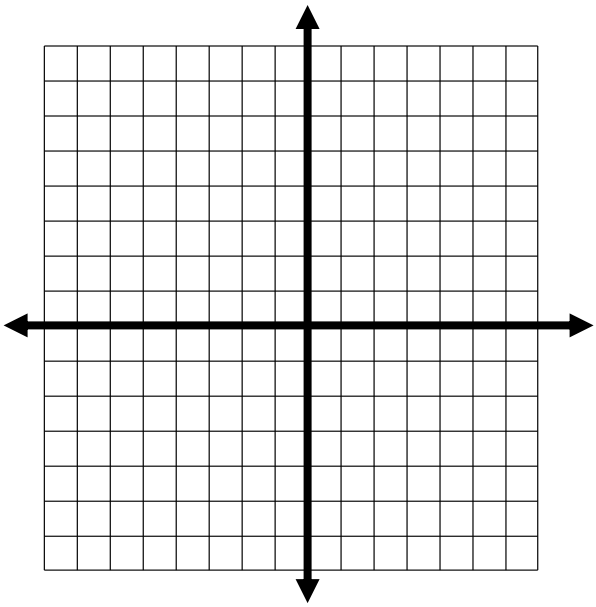
Domain:_____

Range:_____

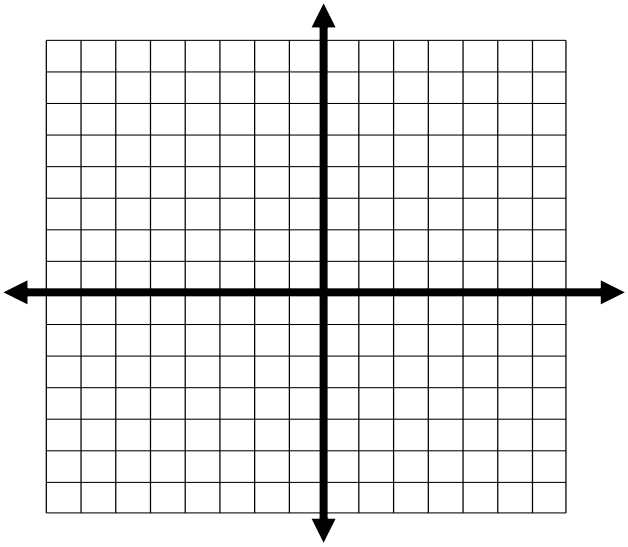
$f(-4) =$

$f(8) =$

$f(2) =$



4. $f(x)=\begin{cases} x^2-1 & x\le 0 \\ 2x-1 & 0<x\le 5 \\ 3 & x>5 \end{cases}$



Domain:_____

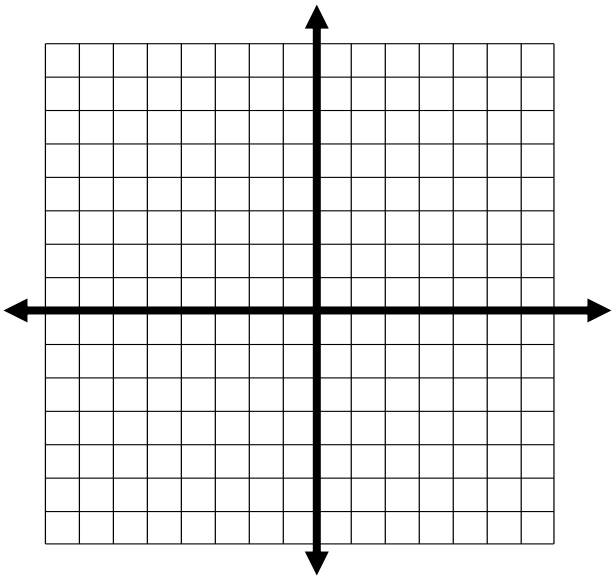
Range:_____

$f(-2)=$

$f(0)=$

$f(5)=$

5. $f(x)=\begin{cases} x^2 & x\le 0 \\ -x^2+4 & x>0 \end{cases}$



Domain:_____

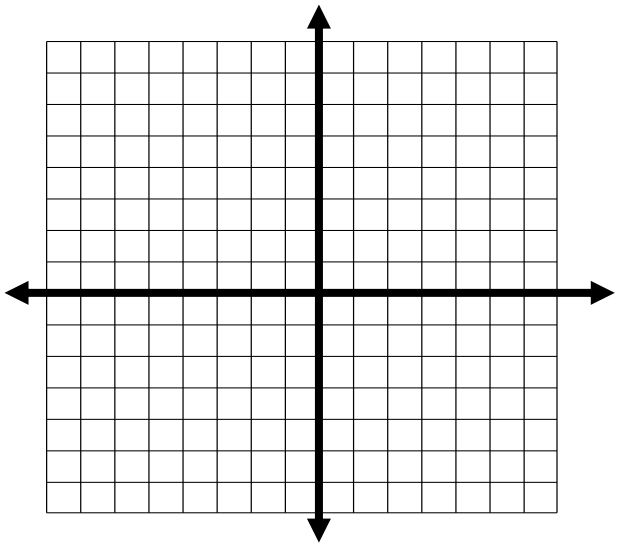
Range:_____

$f(-4)=$

$f(0)=$

$f(3)=$

6. $f(x)=\begin{cases} 5 & x\le -3 \\ -2x-3 & x>-3 \end{cases}$



Domain:_____

Range:_____

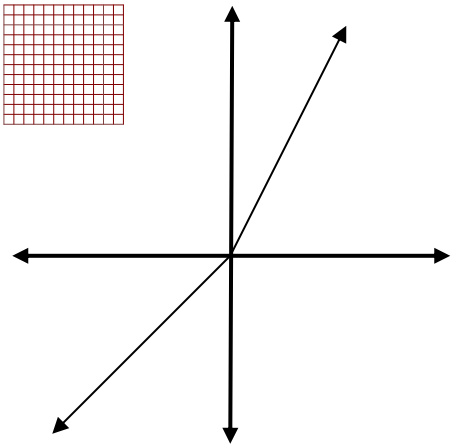
$f(-4)=$

$f(0)=$

$f(3)=$

Part III. Write equations for the piecewise functions whose graphs are shown below. Assume that the units are 1 for every tic marc.

7.



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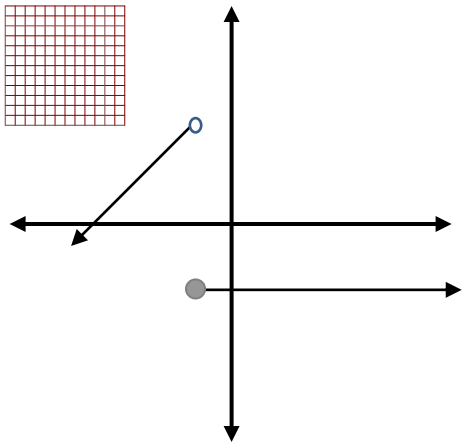

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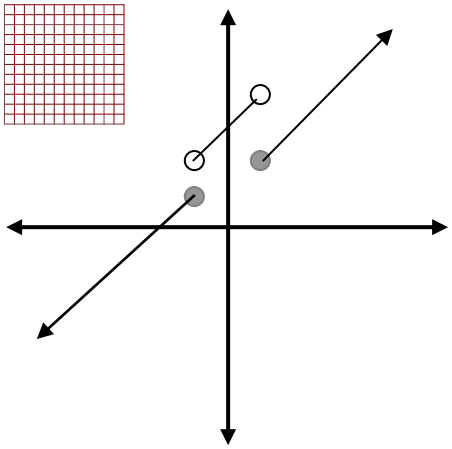

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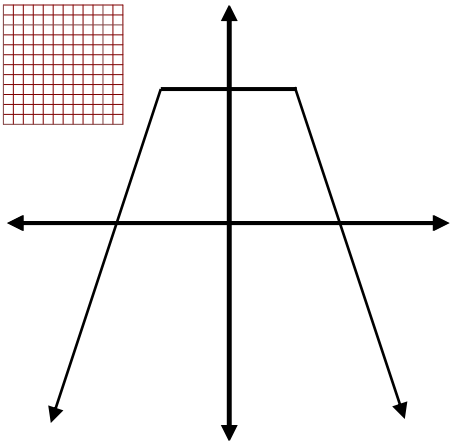

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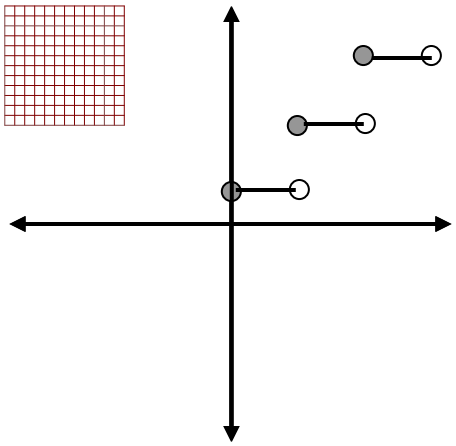
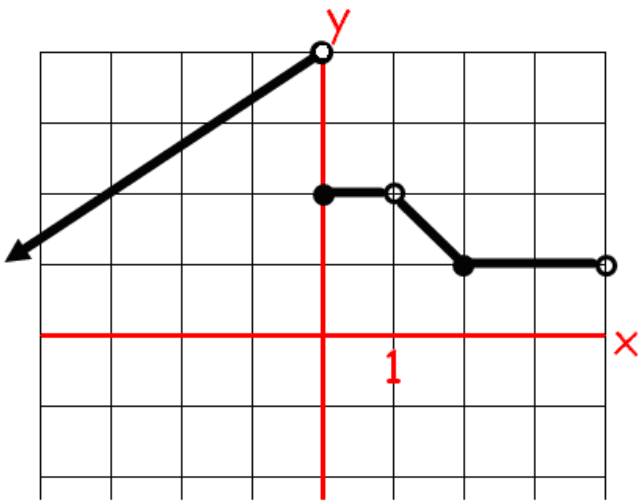


Part IV.

Directions: Please write a functions for the piecewise graph below. Hint: It is in 4 pieces.



Part V.

Directions: Verify that function f and g are inverses.

1. $f(x) = 2x - 9$ and $g(x) = \frac{1}{2}x + \frac{9}{2}$

2. $f(x) = 3x + 6$ and $g(x) = \frac{1}{3}x - 2$

Part VI. Directions: Simplify the following.

1. $81^{3/2}$

2. $81^{-3/2}$

3. $\left(x^2 y\right)^0$

4. $\left(2xy^2\right)^{-3}\left(4xy\right)^{-2}$

5. $\left[\dfrac{(2x)^{-2}}{3xy}\right]^{-1}$

6. $\left(-2xy^{-4}\right)^3$

Part VII.

Directions: Please evaluate as indicated. State restrictions where appropriate.

$f(x) = -x^3$ $\quad g(x) = 3x - 5$ $\quad m(x) = 4 - x$ $\quad h(x) = x^2 + 4$

1. $(f \cdot g)(x)$

2. $(f / g)(x)$

3. $(m \circ g)(x)$

4. $(m - g)(x)$

5. $(m - g)(-2)$

6. $m(m(x))$

7. $(m \circ f)(x)$

8. $h^{-1}(x)$

9. $g^{-1}(x)$

10. $f(g(h(-2)))$

11. $m^{-1}(x)$

12. $f(-2) + g(4) - h(3)$

Solve:

13. $3|x - 2| + 6 = 12$

14. $|2x - 4| = 30$

15. $|2x + 5| \geq 25$

16. $3|x - 6| + 3 < 24$