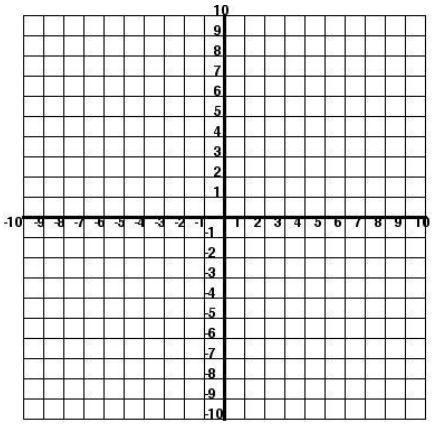
Math 3 **Unit 1 Study Guide 2019** **Name:_____**

Graph each function

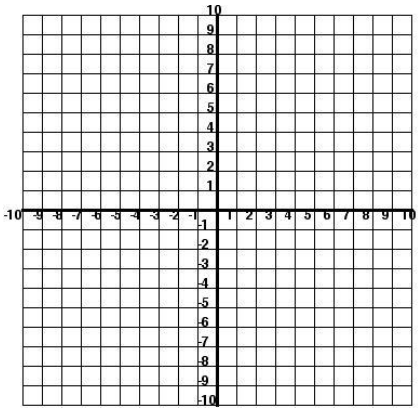
1. $y = -2|x-3| + 2$ Vertex:_____

Domain:_____ Range:_____

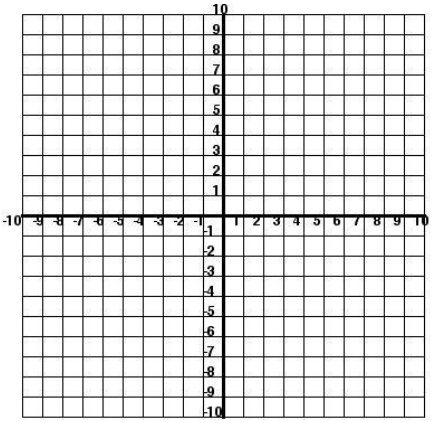


2. $y = -|x-3| + 2$ Vertex:_____

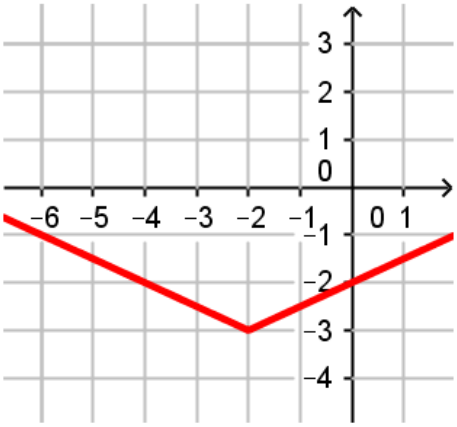
Domain:_____ Range:_____



3. $y < |x+1| - 4$



4. Given the graph, write the equation:



y=_____

Evaluate the following piecewise functions for the given domain.

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

$a)\ f(-2) =$ ____ $b)\ f(0) =$ ___ $c)\ f(5) =$ ____

$d)\ 2f(3) - f(6) =$ _____

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

$a)\ f(-4) =$ _____ $b)\ f(0) =$ _____ $c)\ f(3) =$ _____

7. Write the equation of the piecewise function given:

$$f(x) = \begin{cases} \textit{function here} & , \quad \textit{domain here} \\ & , \\ & , \\ & , \\ & , \end{cases}$$

8) Use the graph to find:

$a)\ f(1) =$ ____, $b)\ f(10) =$ _____,

$c)\ f(x) = 5, x =$ _____

Solve each problem. SHOW your work and CIRCLE the final answer. Write the inequalities in interval notation and show the solution on a number line.

9. $|2x-1| = 5$

10. $2|x+4| - 6 = 10$

11. $|3x+1| + 10 = 4$

12. $|3x - 7| = 5x - 4$

13. $2 + |x+5| > 8$

14. $-4|3x+2| \geq -16$

15. $|2x+1| - 3 < 6$

16. $|x + 8| < -6$