

Name: _____ Hour: _____

4.4 Graphing Piecewise Functions with Two Pieces

Part I. Carefully graph each of the following. Identify whether or not the graph is a function. Then, evaluate the graph at the specified domain value.

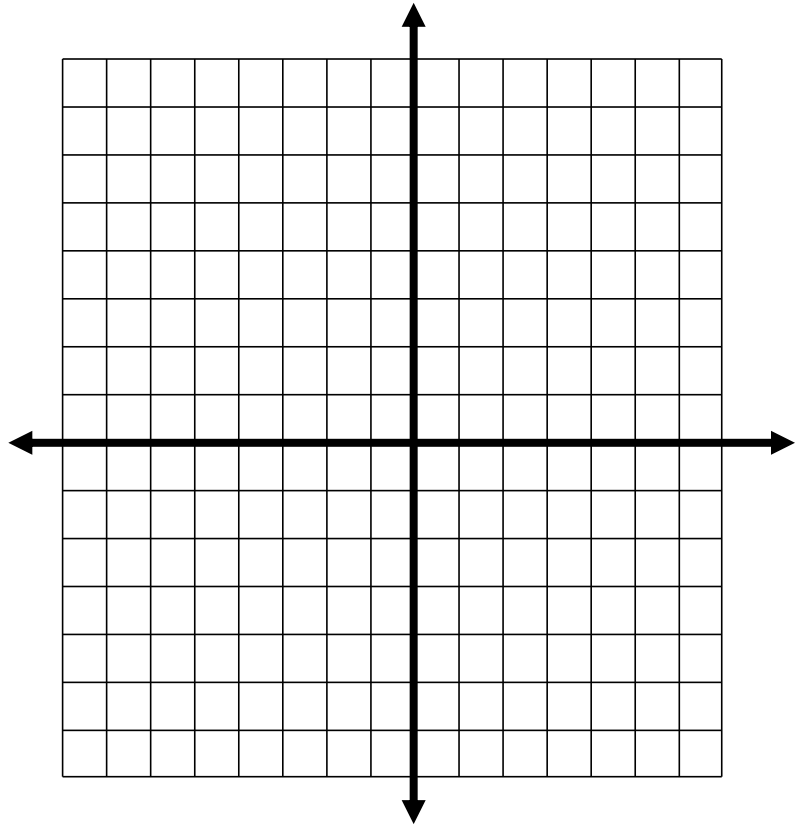
1.
$$f(x) = \begin{cases} x + 5 & x < -2 \\ x^2 + 2x + 3 & x \geq -2 \end{cases}$$

Function? Yes or No

$f(3) =$

$f(-4) =$

$f(-2) =$



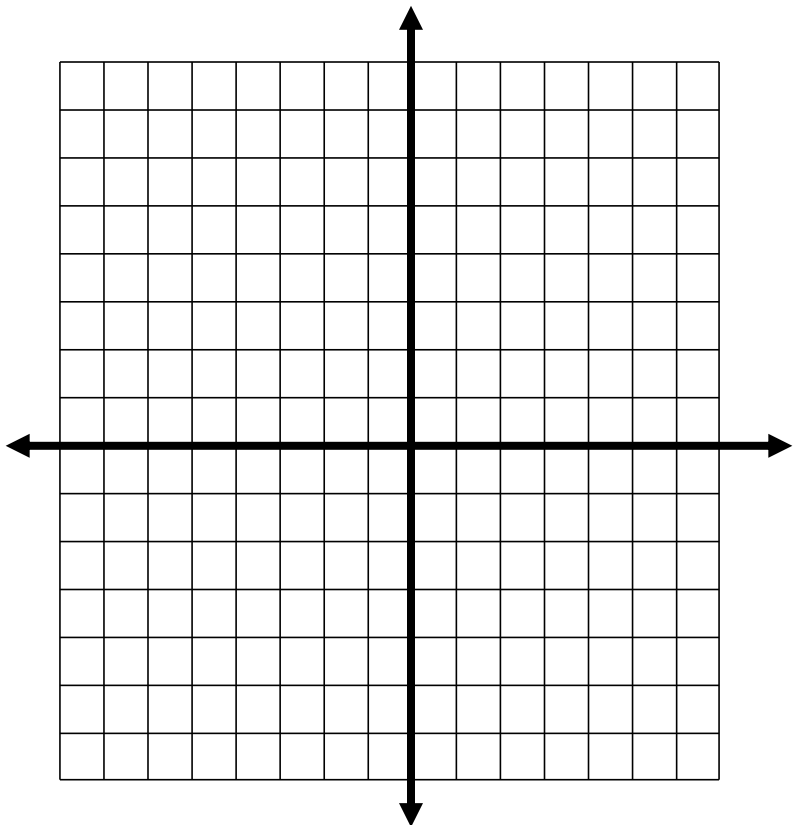
2.
$$f(x) = \begin{cases} 2x + 1 & x \geq 1 \\ x^2 + 3 & x < 1 \end{cases}$$

Function? Yes or No

$f(-2) =$

$f(6) =$

$f(1) =$



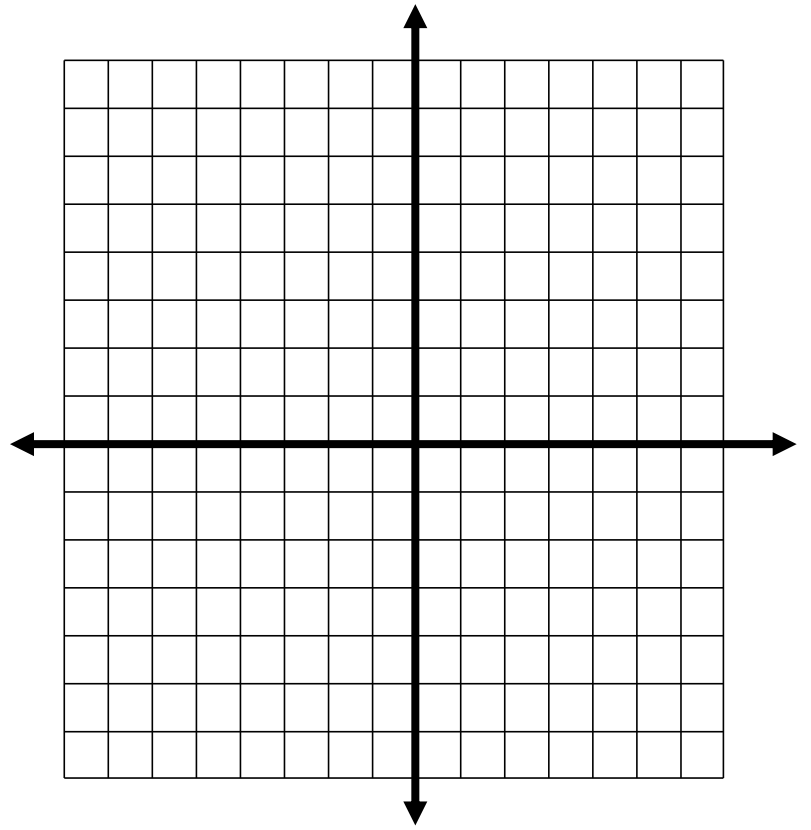
3. $f(x) = \begin{cases} -2x + 1 & x \leq 2 \\ 5x - 4 & x > 2 \end{cases}$

Function? Yes or No

$f(-4) =$

$f(8) =$

$f(2) =$



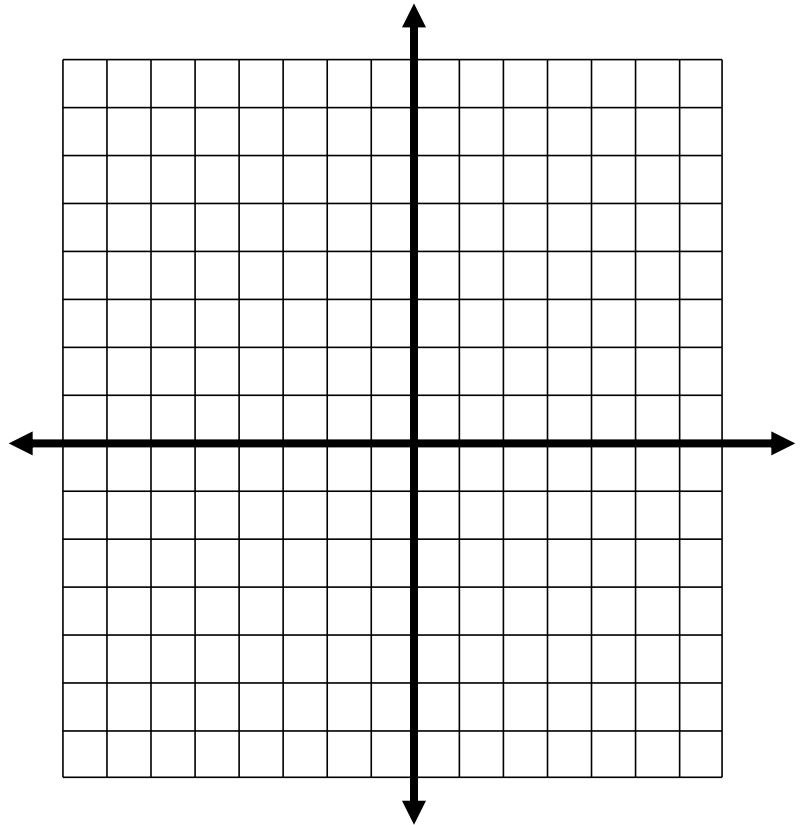
4. $f(x) = \begin{cases} x^2 - 1 & x \leq 0 \\ 2x - 1 & 0 < x \leq 5 \\ 3 & x > 5 \end{cases}$

Function? Yes or No

$f(-2) =$

$f(0) =$

$f(5) =$



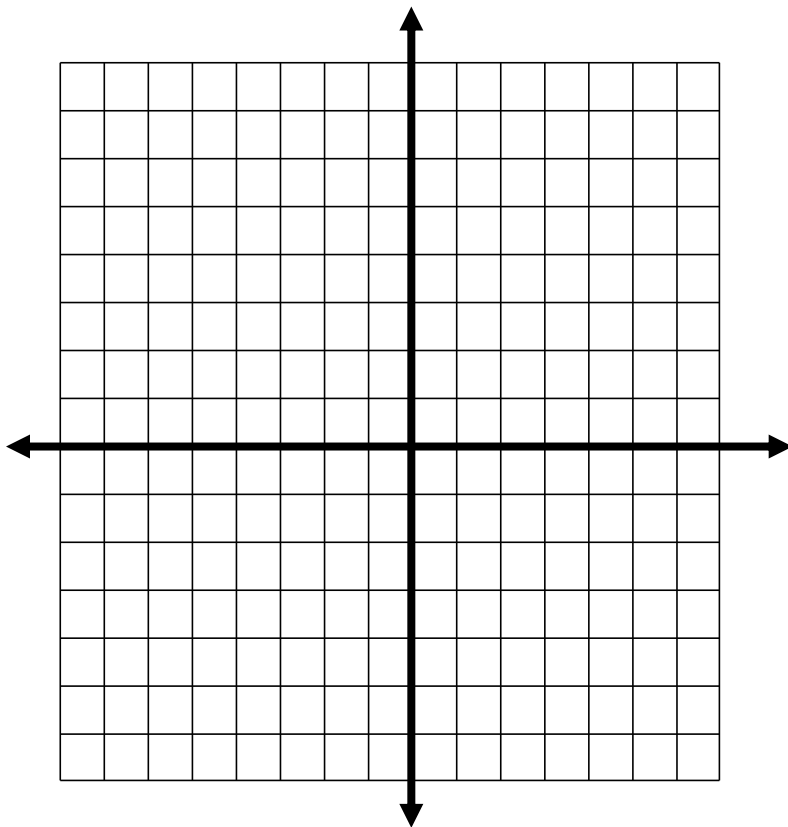
5. $f(x) = \begin{cases} x^2 & x \leq 0 \\ -x^2 + 4 & x > 0 \end{cases}$

Function? Yes or No

$f(-4) =$

$f(0) =$

$f(3) =$



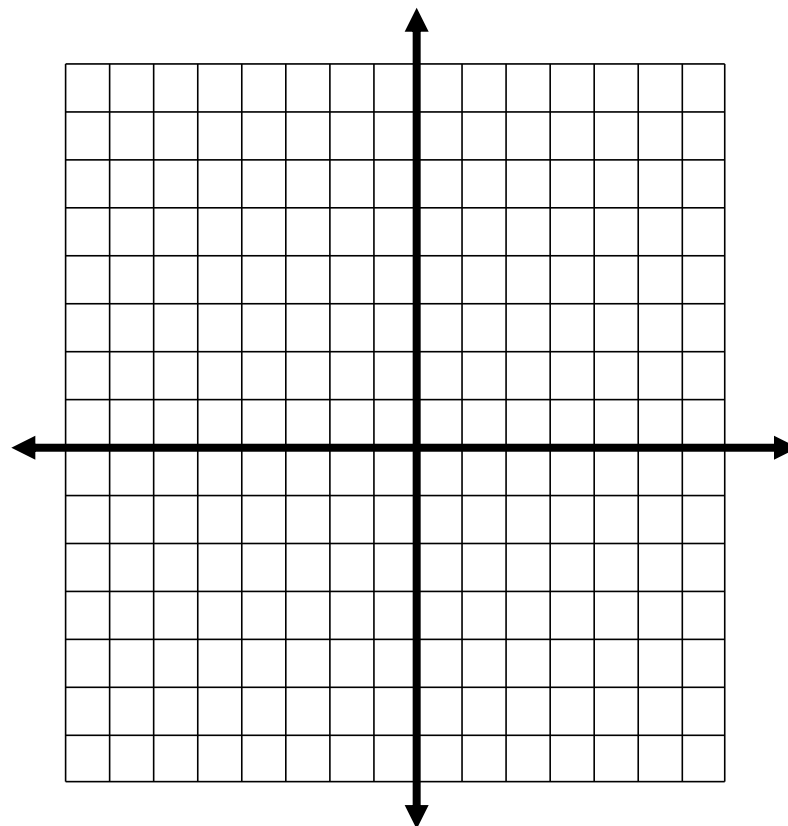
6. $f(x) = \begin{cases} 5 & x \leq -3 \\ -2x - 3 & x > -3 \end{cases}$

Function? Yes or No

$f(-4) =$

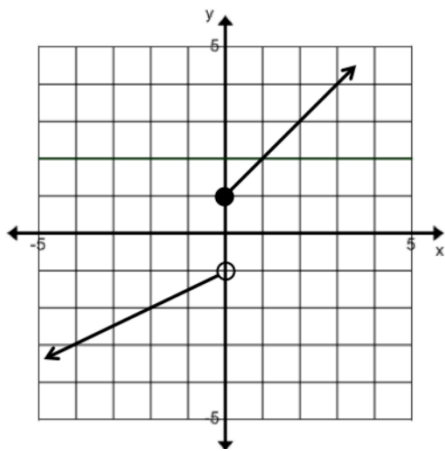
$f(0) =$

$f(3) =$

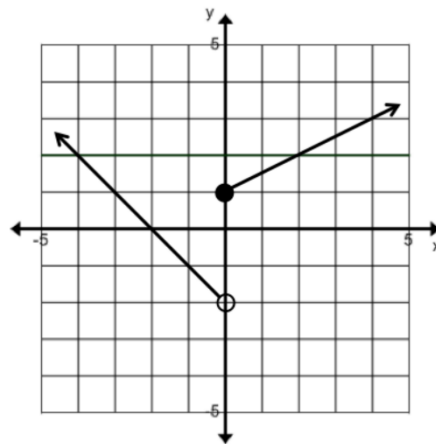


Part II. Write equations for the piecewise functions whose graphs are show below.

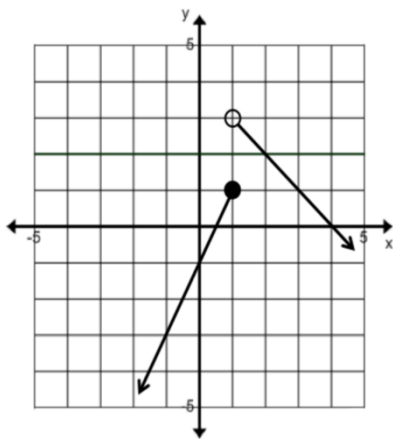
7.



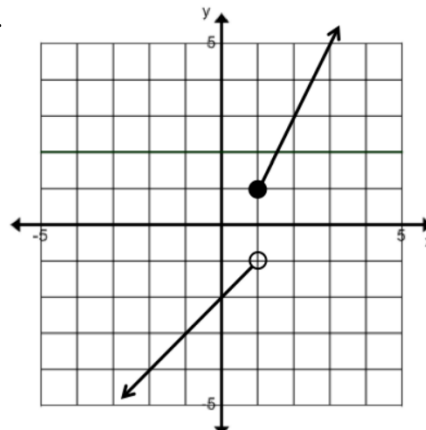
8.



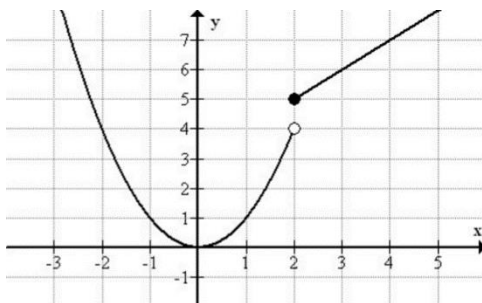
9.



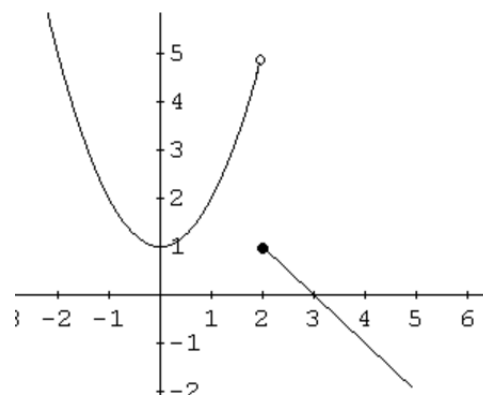
10.



11.



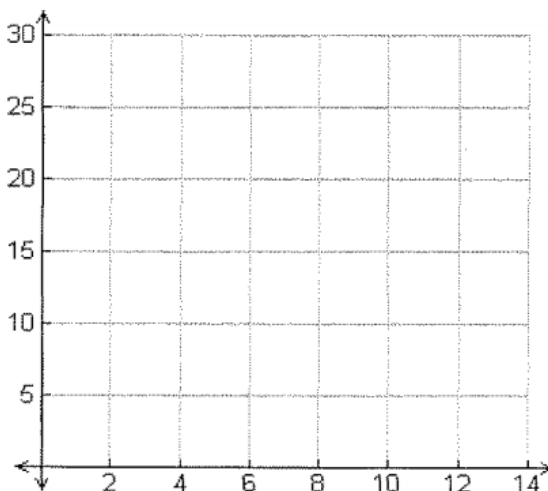
12.



13. Erin buys gas at a self service station for \$2.75 a gallon. The gas station has a promotion going on that anyone who buys more than 10 gallons of gas, only has to pay \$2.50 per gallon. Erin's tank will hold 12 gallons of gas.

a. Write a piece-wise function for the total cost $C(g)$ as a function of g gallons of gas.

b. Graph the piecewise function.



14. A supermarket has a discount on “family packs” of meat. Chicken costs \$2.00/lb for packages over 5 lbs. Smaller packages are \$2.50/lb. Express the cost as a function of weight.

a. Write the piecewise function $C(w)$.

b. Graph the function.

c. Find: $C(3.5)$ and $C(6)$

