

## Worksheet: Piecewise Functions

Evaluate the function for the given value of  $x$ . Show all work.

1.

$$f(x) = \begin{cases} x + 5 & x < -2 \\ x^2 + 2x + 3 & x \geq -2 \end{cases} \quad f(3) = \underline{\hspace{2cm}} \quad f(-4) = \underline{\hspace{2cm}} \quad f(-2) = \underline{\hspace{2cm}}$$

2.

$$f(x) = \begin{cases} 2x + 1 & x \geq 1 \\ x^2 + 3 & x < 1 \end{cases} \quad f(-2) = \underline{\hspace{2cm}} \quad f(6) = \underline{\hspace{2cm}} \quad f(1) = \underline{\hspace{2cm}}$$

Match the piecewise function with its graph.

3.  $f(x) = \begin{cases} x - 4, & \text{if } x \leq 1 \\ 3x, & \text{if } x > 1 \end{cases}$

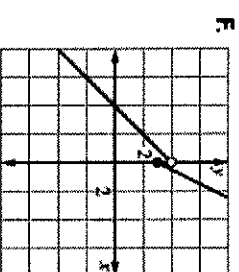
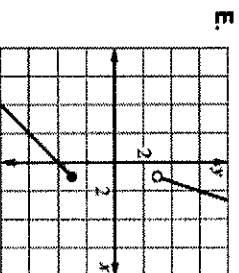
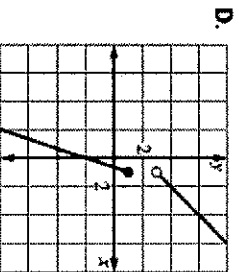
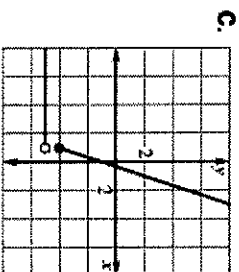
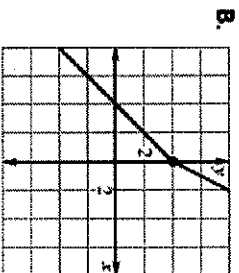
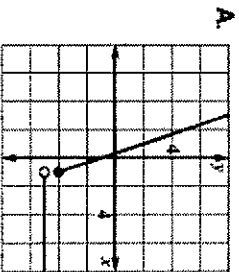
4.  $f(x) = \begin{cases} x + 4, & \text{if } x \leq 0 \\ 2x + 4, & \text{if } x > 0 \end{cases}$

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

6.  $f(x) = \begin{cases} 2x + 3, & \text{if } x \geq 0 \\ x + 4, & \text{if } x < 0 \end{cases}$

7.  $f(x) = \begin{cases} 3x - 1, & \text{if } x \geq -1 \\ -5, & \text{if } x < -1 \end{cases}$

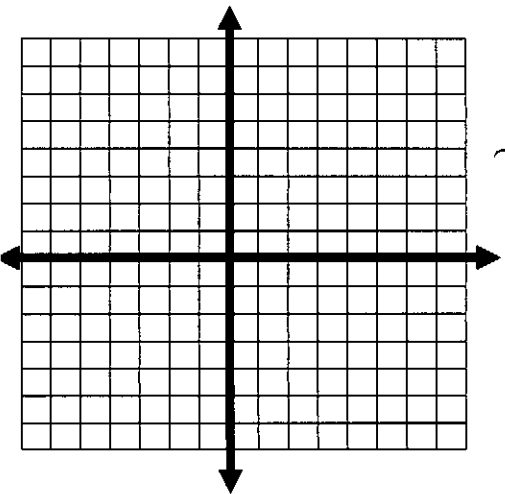
8.  $f(x) = \begin{cases} -3x - 1, & \text{if } x \leq 1 \\ -5, & \text{if } x > 1 \end{cases}$



Carefully graph each function.

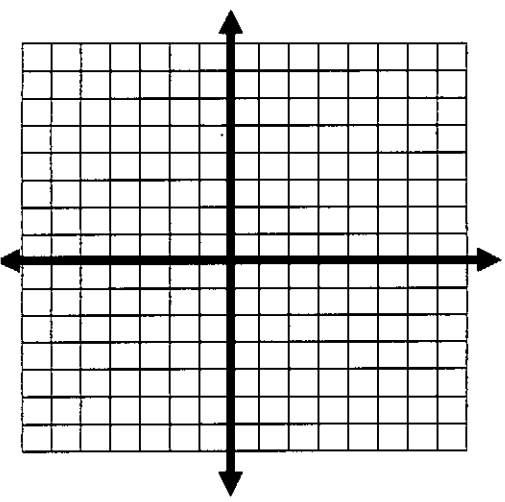
9.

$$f(x) = \begin{cases} 5 & \text{if } x < -2 \\ \frac{1}{2}x - 6 & \text{if } -2 \leq x \leq 4 \\ -2x + 10 & \text{if } x > 4 \end{cases}$$



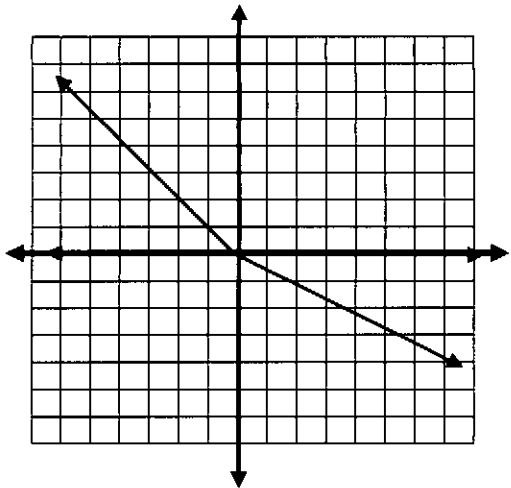
10.

$$f(x) = \begin{cases} x + 3 & \text{if } x < -1 \\ -2x + 4 & \text{if } -1 \leq x < 1 \\ 3x + 1 & \text{if } x \geq 1 \end{cases}$$

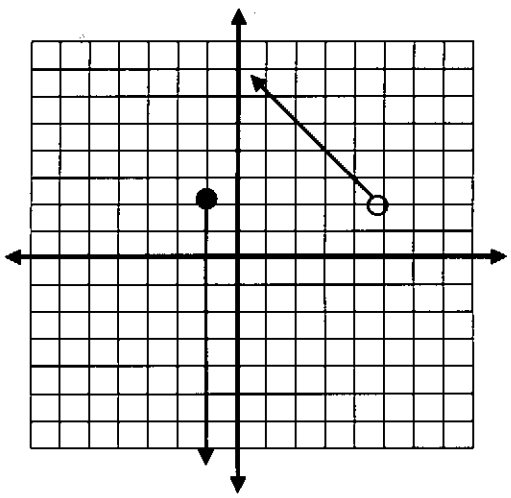


Write equations for the piecewise functions whose graphs are shown below. Assume that the units are 1 for every tic mark.

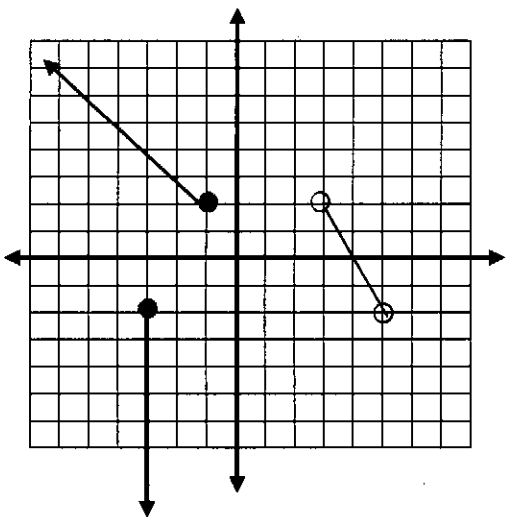
11.



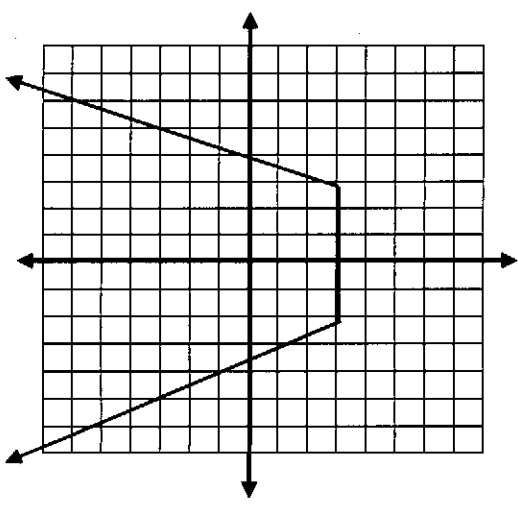
12.



13.



14.



15.

