

Piecewise Functions

Name Key

Evaluate the function below for the given value of x .

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

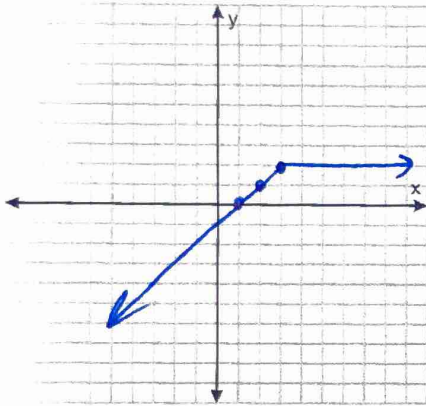
1. $f(-5) = \underline{-10}$

2. $f(0) = \underline{-1}$

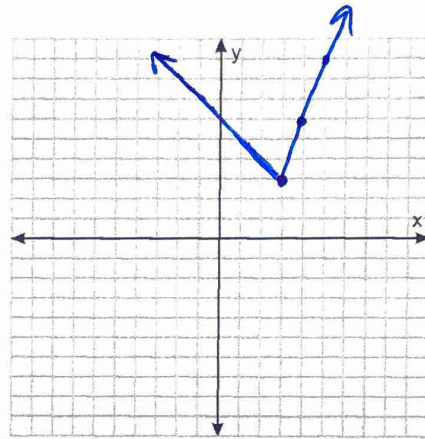
3. $f(3) = \underline{\frac{1}{2}}$

Graph each piecewise-defined function.

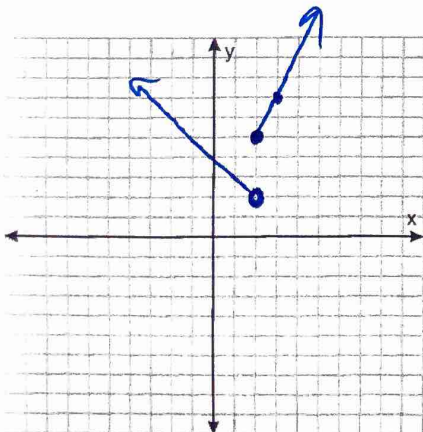
4. $f(x) = \begin{cases} x - 1 & \text{if } x \leq 3 \\ 2 & \text{if } x > 3 \end{cases}$



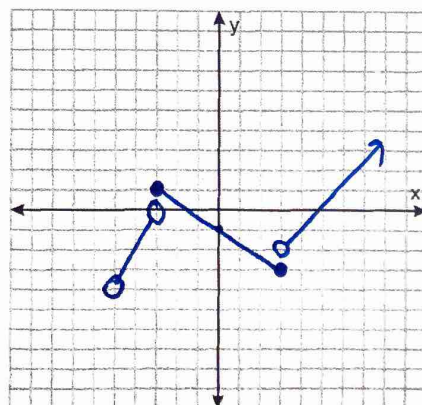
5. $f(x) = \begin{cases} 6 - x & \text{if } x \leq 3 \\ 3x - 6 & \text{if } x > 3 \end{cases}$



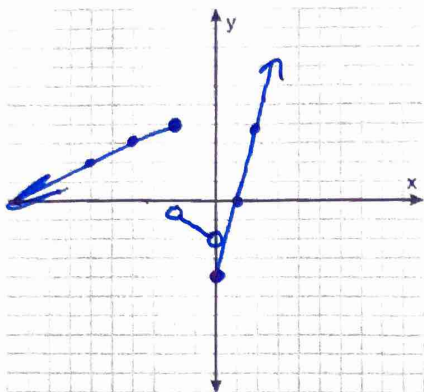
6. $f(x) = \begin{cases} 4 - x & \text{if } x < 2 \\ 1 + 2x & \text{if } x \geq 2 \end{cases}$



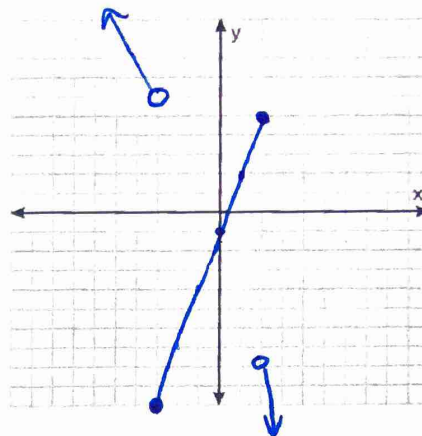
7. $f(x) = \begin{cases} 2x + 6 & \text{if } -5 < x < -3 \\ -\frac{2}{3}x - 1 & \text{if } -3 \leq x \leq 3 \\ x - 5 & \text{if } x > 3 \end{cases}$



$$10. f(x) = \begin{cases} \frac{1}{2}x + 5 & \text{if } x \leq -2 \\ -\frac{2}{3}x - 2 & \text{if } -2 < x < 0 \\ 4x - 4 & \text{if } x \geq 0 \end{cases}$$

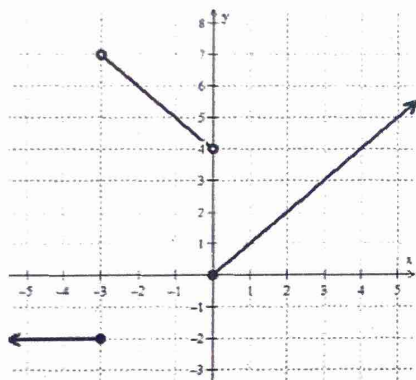


$$11. f(x) = \begin{cases} -2x & \text{if } x < -3 \\ 3x - 1 & \text{if } -3 \leq x \leq 2 \\ -4x & \text{if } x > 2 \end{cases}$$



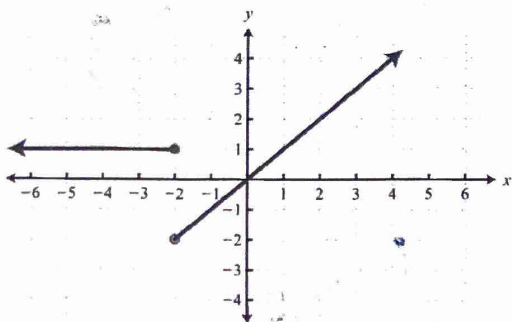
Write the piecewise-defined function for the graph below.

13.



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

14.



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