WORKSHEET 4.6 – Piecewise Functions

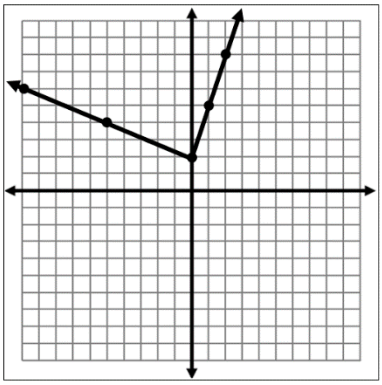
Name: _____ Hour: _____ Date: _____

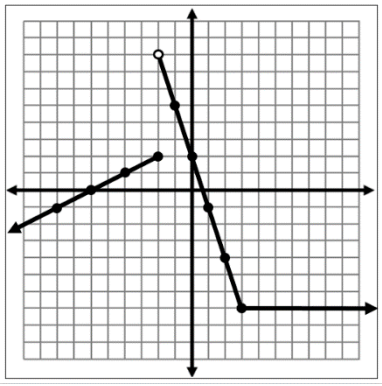
SECTION 1: Evaluate each piecewise function for the given values of x.

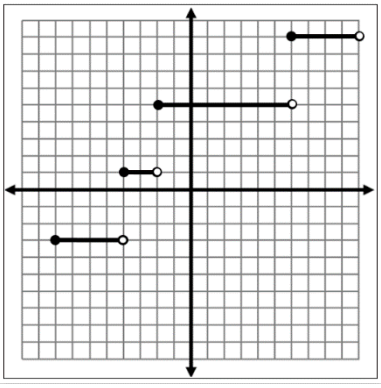
1) $f(x) = \begin{cases} 3x - 5, & \text{if } x < -2 \\ x + 8, & \text{if } x \geq -2 \end{cases}$ $f(-3) =$ _____ $f(0) =$ _____ $f(-2) =$ _____

2) $f(x) = \begin{cases} \frac{3}{4}x + 1, & \text{if } x \leq 6 \\ -\frac{1}{2}x - 3, & \text{if } x > 6 \end{cases}$ $f(-2) =$ _____ $f(6) =$ _____ $f(8) =$ _____

SECTION 2: Write the equation of each piecewise function.

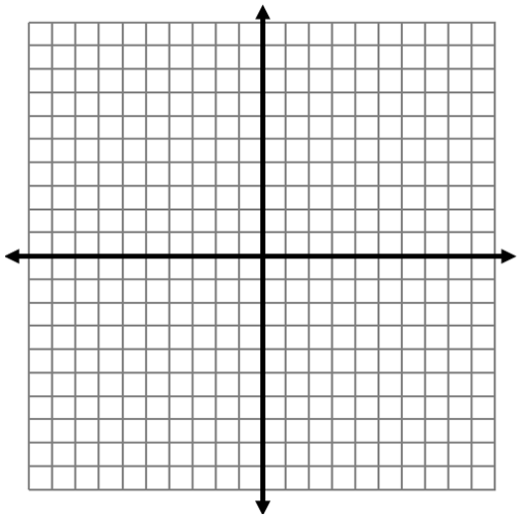
3) 

4) 

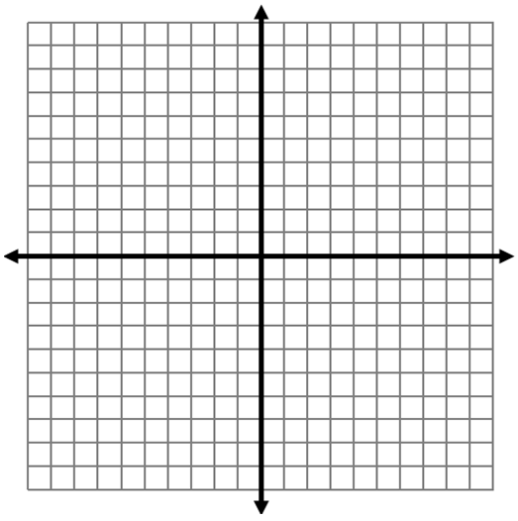
5) 

SECTION 3: Graph each step function.

6) $f(x) = \begin{cases} -2, & -1 < x \leq 3 \\ 1, & 3 < x \leq 5 \\ 4, & 5 < x \leq 6 \end{cases}$

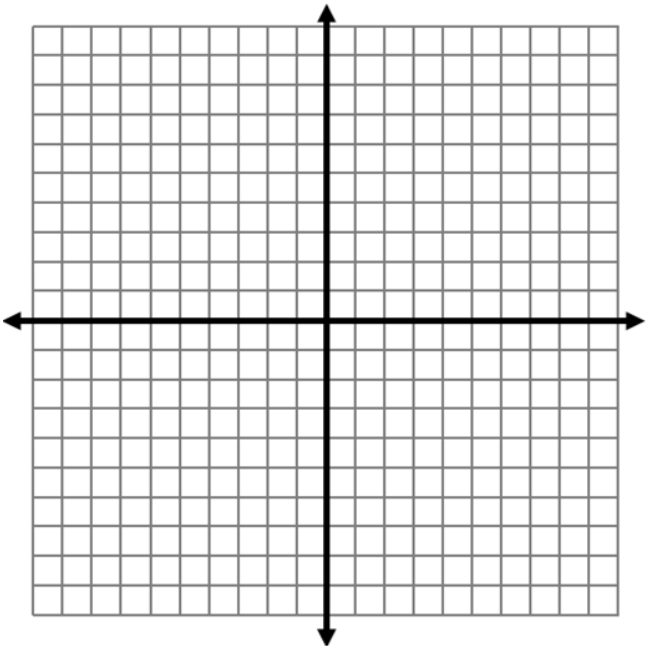


7) $f(x) = \begin{cases} 5, & \text{if } -7 < x \leq -2 \\ 1, & \text{if } -2 < x \leq 1 \\ -3, & \text{if } 1 < x \leq 4 \\ -6, & \text{if } 4 < x \leq 7 \end{cases}$

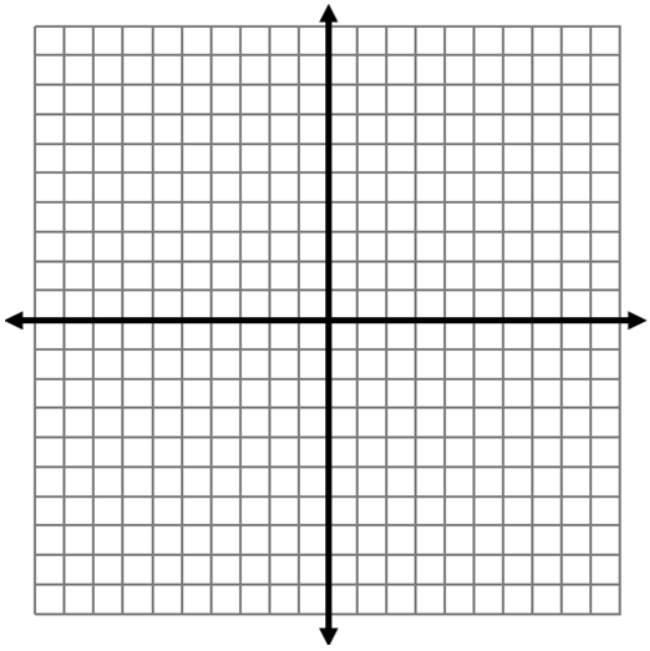


SECTION 4: Graph each piecewise function.

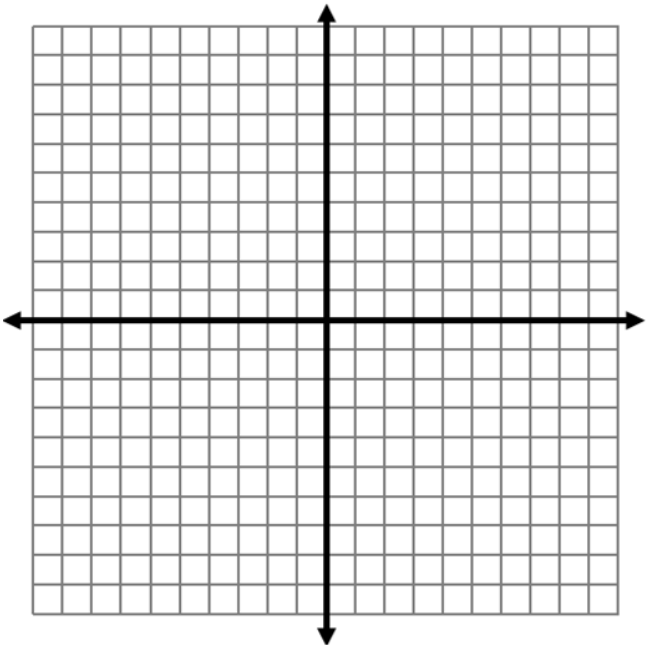
8) $$f(x) = \begin{cases} 4x + 3, & \text{if } x \le 1 \\ -2x + 9, & \text{if } x > 1 \end{cases}$$



9) $$f(x) = \begin{cases} -\frac{2}{3}x - 1, & \text{if } x < 3 \\ x - 10, & \text{if } x \ge 3 \end{cases}$$



10) $$f(x) = \begin{cases} 5x + 8, & \text{if } x < -1 \\ 3, & \text{if } -1 \le x < 5 \\ -\frac{1}{5}x + 4, & \text{if } x \ge 5 \end{cases}$$



11) $$f(x) = \begin{cases} -\frac{4}{5}x - 1, & \text{if } x \le 0 \\ x + 1, & \text{if } 0 < x \le 4 \\ -\frac{1}{2}x + 10, & \text{if } x > 4 \end{cases}$$