

# WORKSHEET 2.7 – Piecewise Functions



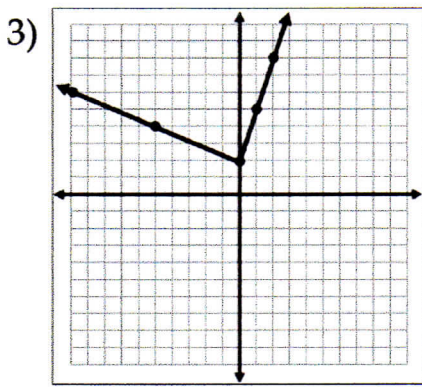
Name: \_\_\_\_\_ Hour: \_\_\_\_\_ Date: \_\_\_\_\_

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

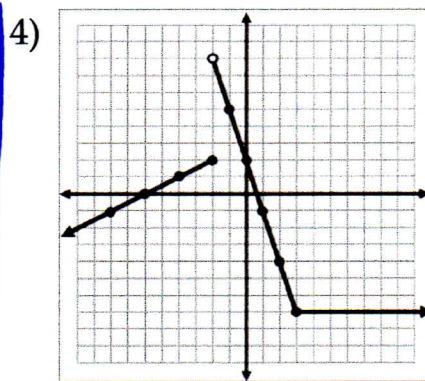
1)  $f(x) = \begin{cases} 3x - 5, & \text{if } x < -2 \\ x + 8, & \text{if } x \geq -2 \end{cases}$       $f(-3) = \underline{-14}$       $f(0) = \underline{8}$       $f(-2) = \underline{6}$

2)  $f(x) = \begin{cases} \frac{3}{4}x + 1, & \text{if } x \leq 6 \\ -\frac{1}{2}x - 3, & \text{if } x > 6 \end{cases}$       $f(-2) = \underline{-\frac{1}{2}}$       $f(6) = \underline{\frac{11}{2}}$       $f(8) = \underline{-7}$

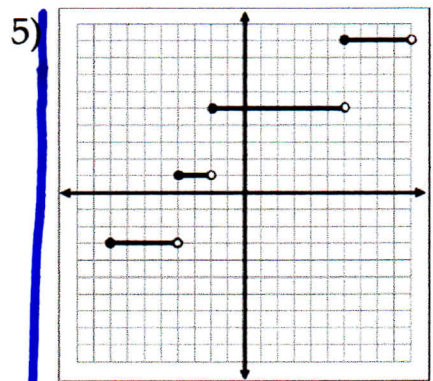
## SECTION 2: Write the equation of each piecewise function.



$$f(x) = \begin{cases} -\frac{2}{5}x + 2, & \text{if } x \leq 0 \\ 3x + 2, & \text{if } x > 0 \end{cases}$$



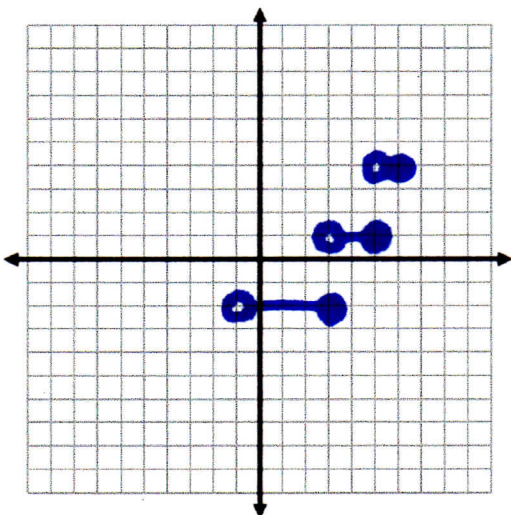
$$f(x) = \begin{cases} \frac{1}{2}x + 3, & \text{if } x \leq -2 \\ -3x + 2, & \text{if } -2 < x \leq 3 \\ -7, & \text{if } x > 3 \end{cases}$$



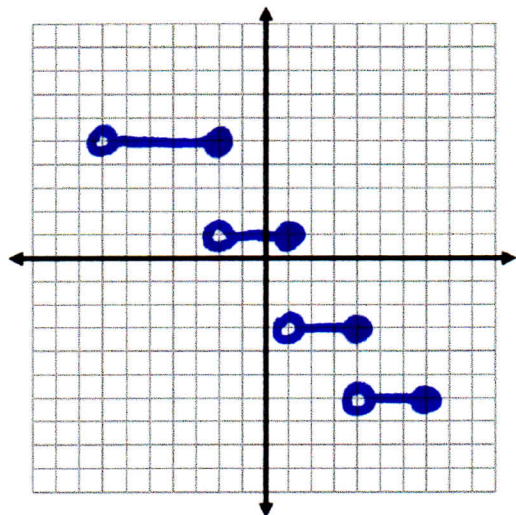
$$f(x) = \begin{cases} -3, & \text{if } -8 \leq x < -4 \\ 1, & \text{if } -4 \leq x < -2 \\ 5, & \text{if } -2 \leq x < 6 \\ 9, & \text{if } 6 \leq x < 9 \end{cases}$$

## SECTION 3: Graph each step function.

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

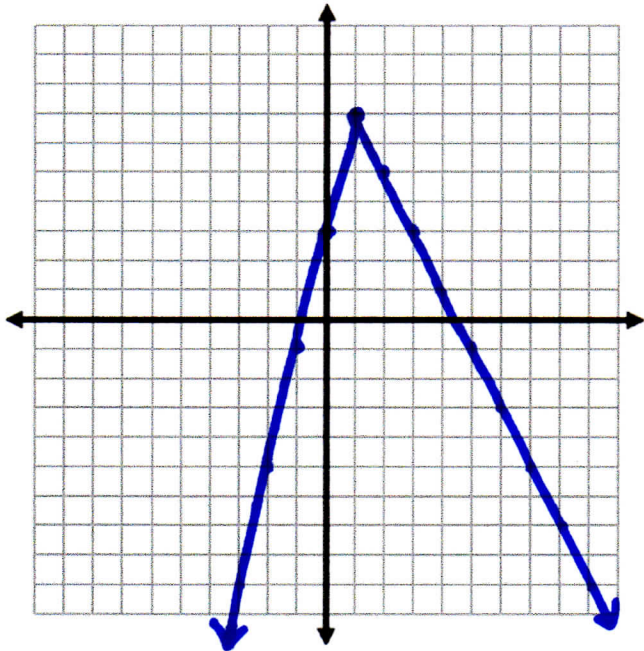


7)  $f(x) = \begin{cases} 5, & -7 < x \leq -2 \\ 1, & -2 < x \leq 1 \\ -3, & 1 < x \leq 4 \\ -6, & 4 < x \leq 7 \end{cases}$

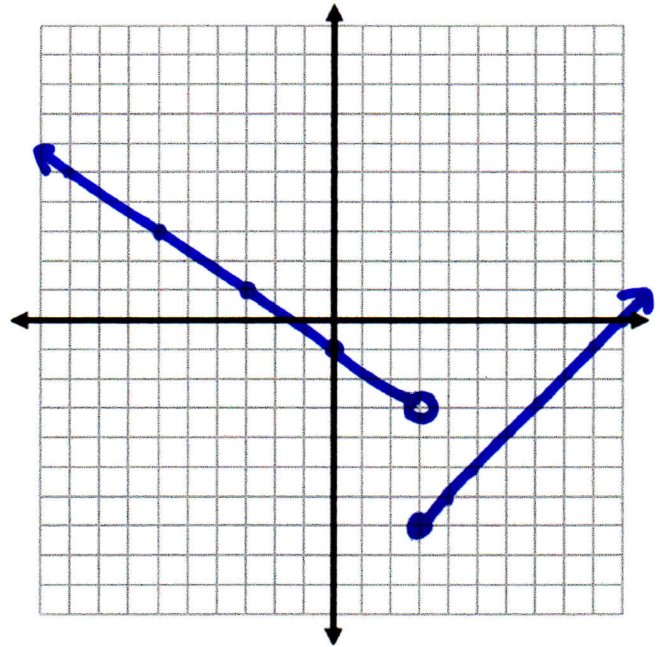


**SECTION 4:** Graph each piecewise function.

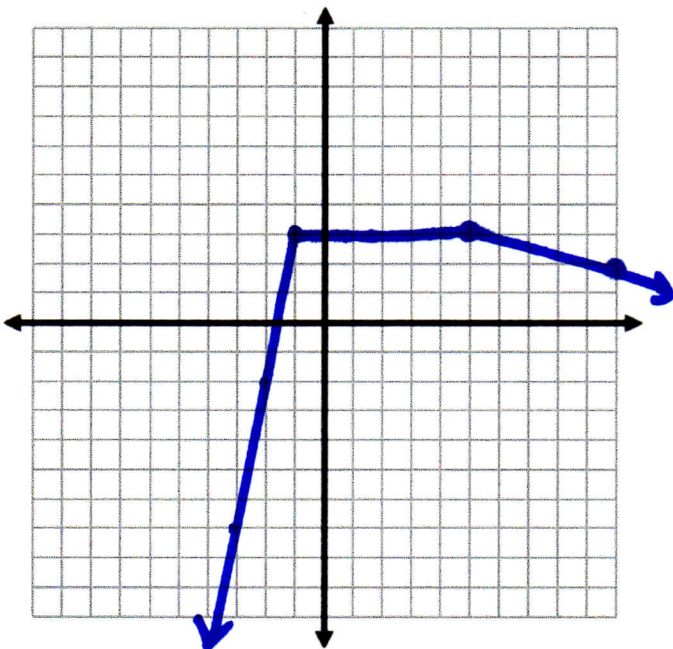
$$8) f(x) = \begin{cases} 4x + 3, & \text{if } x \leq 1 \\ -2x + 9, & \text{if } x > 1 \end{cases}$$



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



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



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

