Name:_____ Date: _____ Per: ___

2-2: Piecewise & Step Functions Worksheet

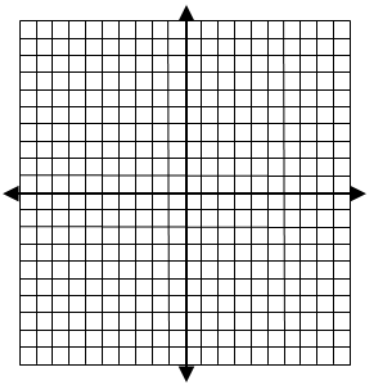
1. Evaluate the function for the given value of x.

$$f(x)=\begin{cases} -\frac{1}{3}x-4 & if \;\; x>-1 \\ 5x-3 & if \;\; x\le -1 \end{cases}$$

a. $f(6)$ b. $f(-3)$ c. $f(-4)$ d. $f(-1)$ e. $f(0)$

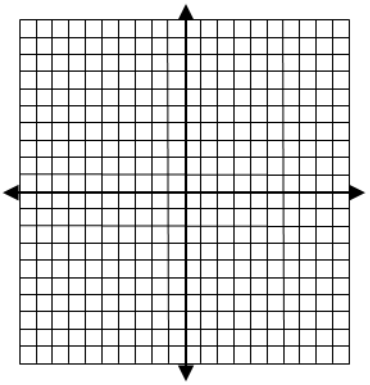
2. Graph the following function on the graph to the right.

$$f(x)=\begin{cases} 3 & if \quad x<-2 \\ -2 & if \quad -2\le x<1 \\ 1 & if \quad x\ge 1 \end{cases}$$

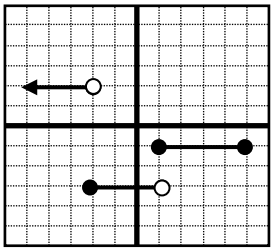


3. Graph the following function on the graph to the right.

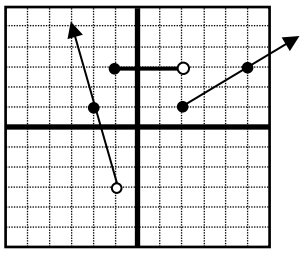
$$f(x)=\begin{cases} 2x+1 & if \quad x<3 \\ -\frac{1}{2}x-3 & if \quad x>3 \\ 4 & if \quad x=3 \end{cases}$$



4. Write the equation of the function to the right.

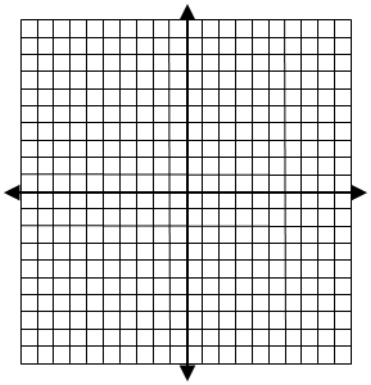


5. Write the equation of the function to the right.

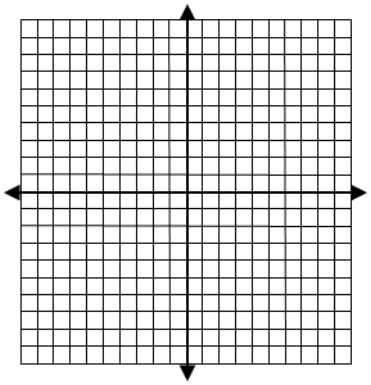


Graph the following functions.

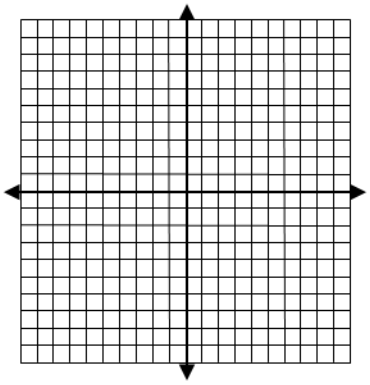
6. $P(x)=\begin{cases} 3x-3, & x<1 \\ -2(x-1)^2, & x\geq 1 \end{cases}$



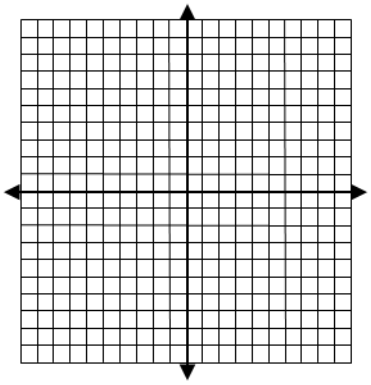
7. $f(x)=\begin{cases} 0 & 0\leq x<1 \\ 1 & 1\leq x<2 \\ 2 & 2\leq x<3 \\ 3 & 3\leq x<4 \end{cases}$



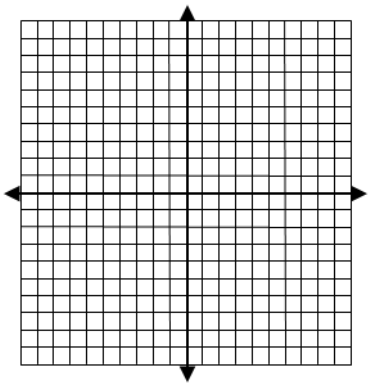
8. $g(x)=\begin{cases} -4, & x\leq 0 \\ 3x^2-4, & 0<x\leq 1 \\ -x, & x>1 \end{cases}$



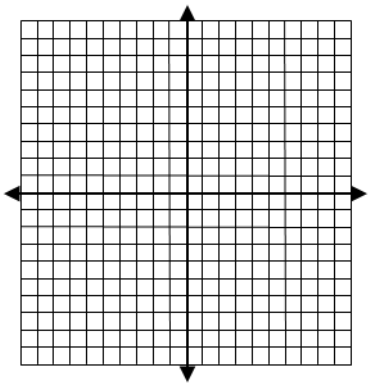
9. $g(x)=\begin{cases} -2, & x<-3 \\ \frac{2}{3}x, & -3\leq x\leq 3 \\ 2, & x>3 \end{cases}$



10. $h(x)=\begin{cases} -x^3, & x<0 \\ -2x, & 0\leq x<3 \\ (x-3)^2, & x\geq 3 \end{cases}$



11. $f(x)=\begin{cases} |x|, & x<0 \\ x^2, & 0\leq x<1 \\ 2, & x=1 \\ 2-x, & x>1 \end{cases}$



SELECT SOLUTIONS

1 a) -6 b) -18 c) -23 d) -8 e) -4 4) $f(x)=\begin{cases} 2 & x<-2 \\ -3 & -2\leq x<1 \\ -1 & 1\leq x\leq 4 \end{cases}$ 5) $f(x)=\begin{cases} -4x-7 & x<-1 \\ 3 & -1\leq x<2 \\ \frac{2}{3}x-\frac{1}{3} & x\geq 2 \end{cases}$