Bell Ringer

Wednesday 8/28

Simplify each expression. All exponents must be positive.

1. $2(3+7)^3$

$2(10)^3$
$2(1000)$
2000

2. $-3(4+6\div 2)^2$

$-3(4+3)^2$
$-3(7)^2$
$-3(49)$ -147

Evaluate each expression for $a=-2$ and $b=5$.

3. $(a-b)^2$

$((-2)-(5))^2$
$(-7)^2 = (-7)(-7)$
49

-7^2
$-7\cdot 7$

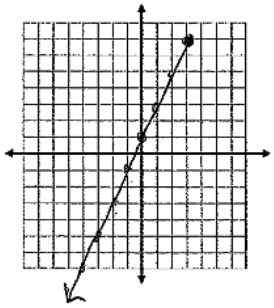
4. $b-(3a)^2$

$(5)-(3(-2))^2$
$5-(-6)^2$
$5-(36)$
-31

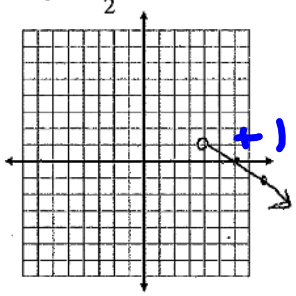
Intro to Piecewise Functions Worksheet Name: Key Hr: ____

Graph the following functions with their restricted domains.

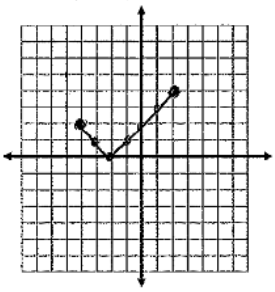
1. $y=2x+1, \quad x\le 3$



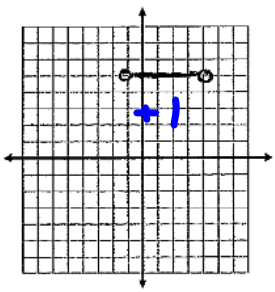
2. $y=-\frac{1}{2}x+3, \quad x>4$



3. $y=|x+2|, \quad -4\le x\le 2$

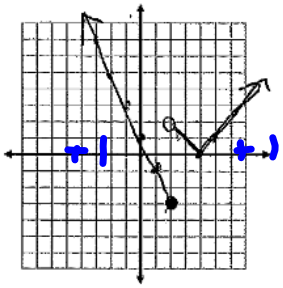


4. $y=5, \quad -1,<x<4$

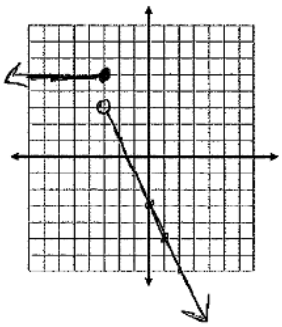


Graph the following piecewise functions.

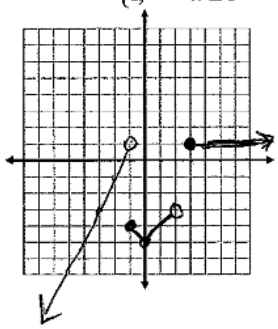
5. $f(x)=\begin{cases}-2x+1 & x\le 2\\ |x-4| & x>2\end{cases}$



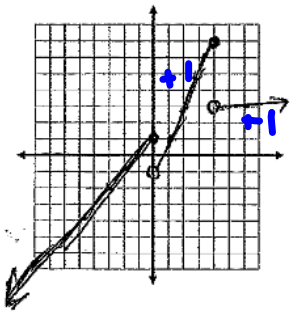
6. $f(x)=\begin{cases}5 & x\le -3\\ -2x-3 & x>-3\end{cases}$



7. $f(x)=\begin{cases}2x+3, & x<-1\\ |x|-5, & -1\le x<2\\ 1, & x\ge 3\end{cases}$

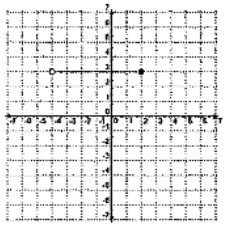


8. $f(x)=\begin{cases}x+1, & x\le 0\\ 2x-1, & 0<x\le 4\\ 3, & x>4\end{cases}$

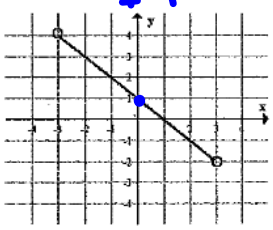


Write an equation with its restricted domain for each graph

9. $f(x)=3, \quad -4<x\le 2$



10. $f(x)=-x+1, \quad -3<x<3$



8 pts + 2 completion

Piecewise Functions 1.2 Day 2

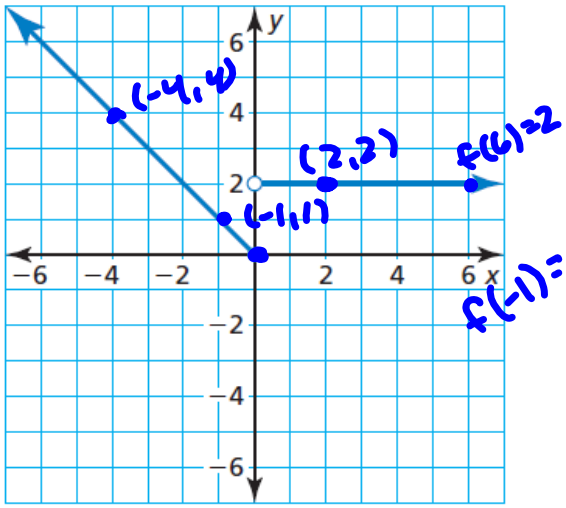
Writing and Applications

Work with a partner.

a. Evaluate f(0) (0, 0)

f(2) = 2 f(-4) = 4

b. Write an equation that represents the values of the function when $x \leq 0$.



$$f(x) = \boxed{-x \quad |x|}, \text{ if } x \leq 0$$

c. Write an equation that represents the values of the function when $x > 0$.

$$f(x) = \boxed{2}, \text{ if } x > 0$$

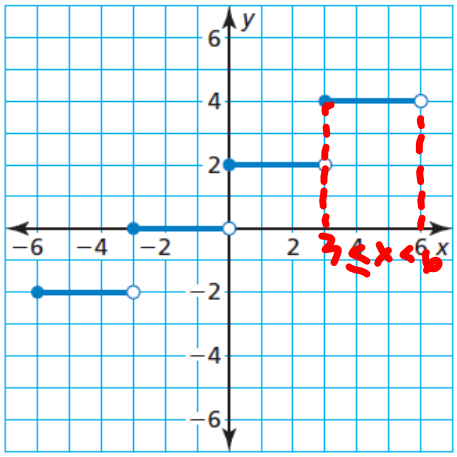
e. Combine the results of parts (c) and (d) to write a single description of the function.

$$f(x) = \begin{cases} \boxed{\quad}, \text{ if } x \leq 0 \\ \boxed{\quad}, \text{ if } x > 0 \end{cases}$$

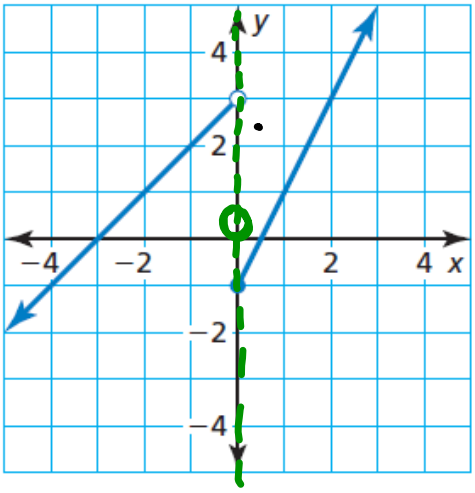
Work with a partner.

a. Describe the values of the function for the following intervals.

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

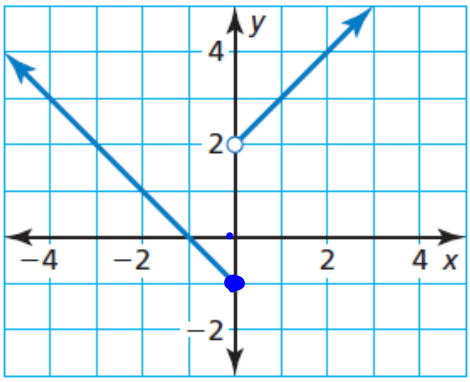


Write a piecewise function for the graph.



$$f(x) = \begin{cases} x + 3, & x < 0 \\ -|x| + 3, & \\ 2x - 1, & x \geq 0 \end{cases}$$

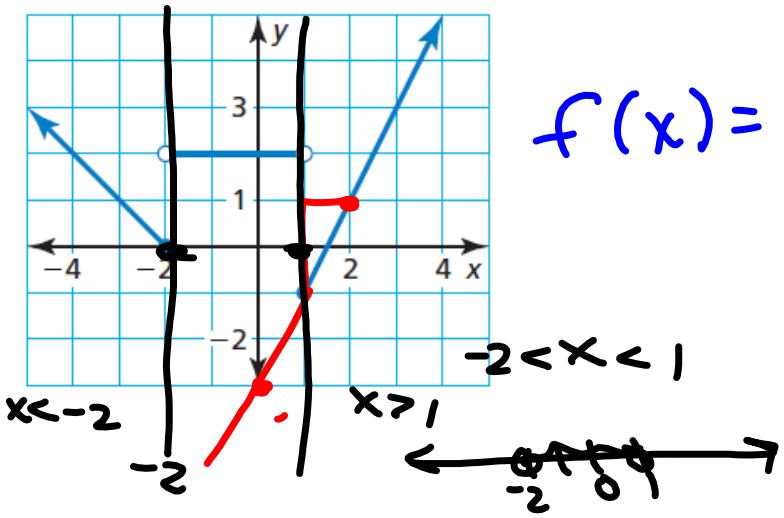
Write a piecewise function for the graph.



$f(x) = \begin{cases} x-1, & x \leq 0 \\ x+2, & x > 0 \end{cases}$

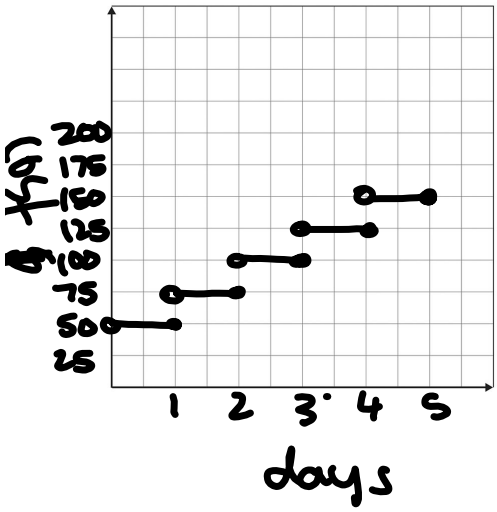
$f(0) = -1$

Write a piecewise function for the graph.



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

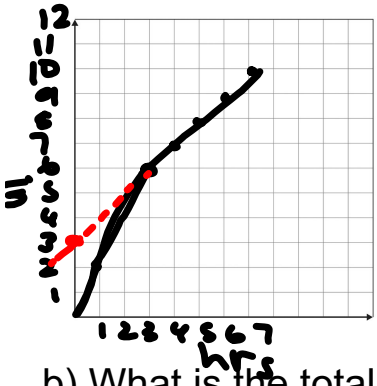
You rent a karaoke machine for 5 days. The rental company charges $50 for the first day and $25 for each additional day. Write and graph a step function that represents the relationship between the number *x* of days and the total cost *y* (in dollars) of renting the karaoke machine.



$$f(x) = \begin{cases} 50, & 0 < x \leq 1 \\ 75, & 1 < x \leq 2 \\ 100, & 2 < x \leq 3 \\ 125, & 3 < x \leq 4 \\ 150, & 4 < x \leq 5 \end{cases}$$

During a 7-hour snowstorm it snows at a rate of 2 inch per hour for the first 3 hours, and 1 inch per hour for the next 4 hours.

a) Write and graph a piecewise function that represents the depth of snow during the snowstorm.



$$f(x)=\begin{cases} 2x, & 0\le x\le 3 \\ x+3, & 3\le x\le 7 \end{cases}$$

b) What is the total amount of snow that accumulated during the storm?

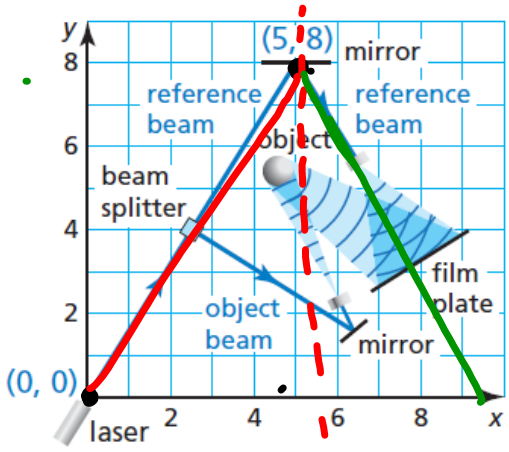
10 in

a. Write an absolute value function that represents the path of the reference beam.

$$f(x) = -\frac{8}{5}|x-5|+8$$

b. Write the function in part (a) as a piecewise function.

$$f(x) = \begin{cases} \frac{8}{5}x, & 0 \le x \le 5 \\ -\frac{8}{5}x+16, & x > 5 \end{cases}$$



1.2 Piecewise Functions - Writing and Applications

pg 16-18: #s 23-30, 35, 36, 37, 48, 55