Piecewise Functions

Piecewise Function: a function represented by a combination of equations, each corresponding to a part of the domain

ex. $f(x)=\begin{cases}2x-1, x\le 1\\ 3x+1, x>1\end{cases}$

***Evaluating Piecewise Functions**

Ex. Evaluate the function at the indicated value.

1) $f(x)=\begin{cases}3x+2, x\le 3\\ x-1, x>3\end{cases}$

$f(0)=$

$f(2)=$

$f(20)=$

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

$f(-1)=-3$

$f(1)=-2$

$f(0)=-2$

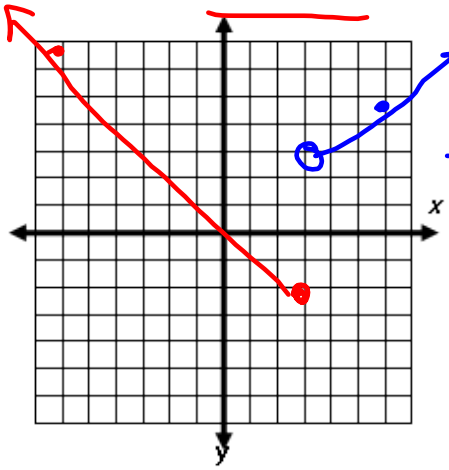
Graphing Piecewise Functions

D: $(-\infty, \infty)$
R: $[-2, \infty)$

Graph each function. Then state the domain and range.

(1) $f(x) = \begin{cases} \frac{2}{3}x + 1, & x > 3 \\ -x + 1, & x \le 3 \end{cases}$

***evaluate each piece of the function for at least two values (include endpoints)**



x	$\frac{2}{3}x+1$
3	3 ○
6	5

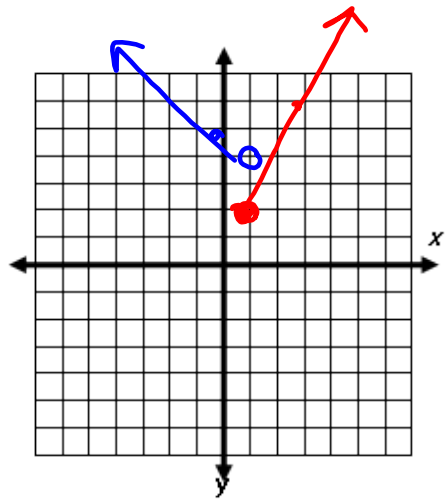
x	$-x+1$
3	-2 ●
-6	7

Graphing Piecewise Functions

Ex. #2 Graph $f(x) = \begin{cases} 2x, & x \ge 1 \\ -x + 5, & x < 1 \end{cases}$

x	$2x$
1	2 ●
3	6

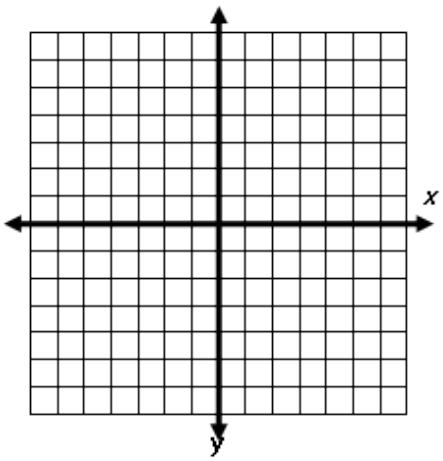
x	$-x+5$
1	4 ○
0	5

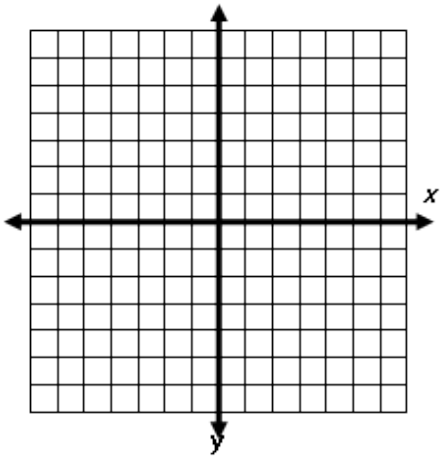
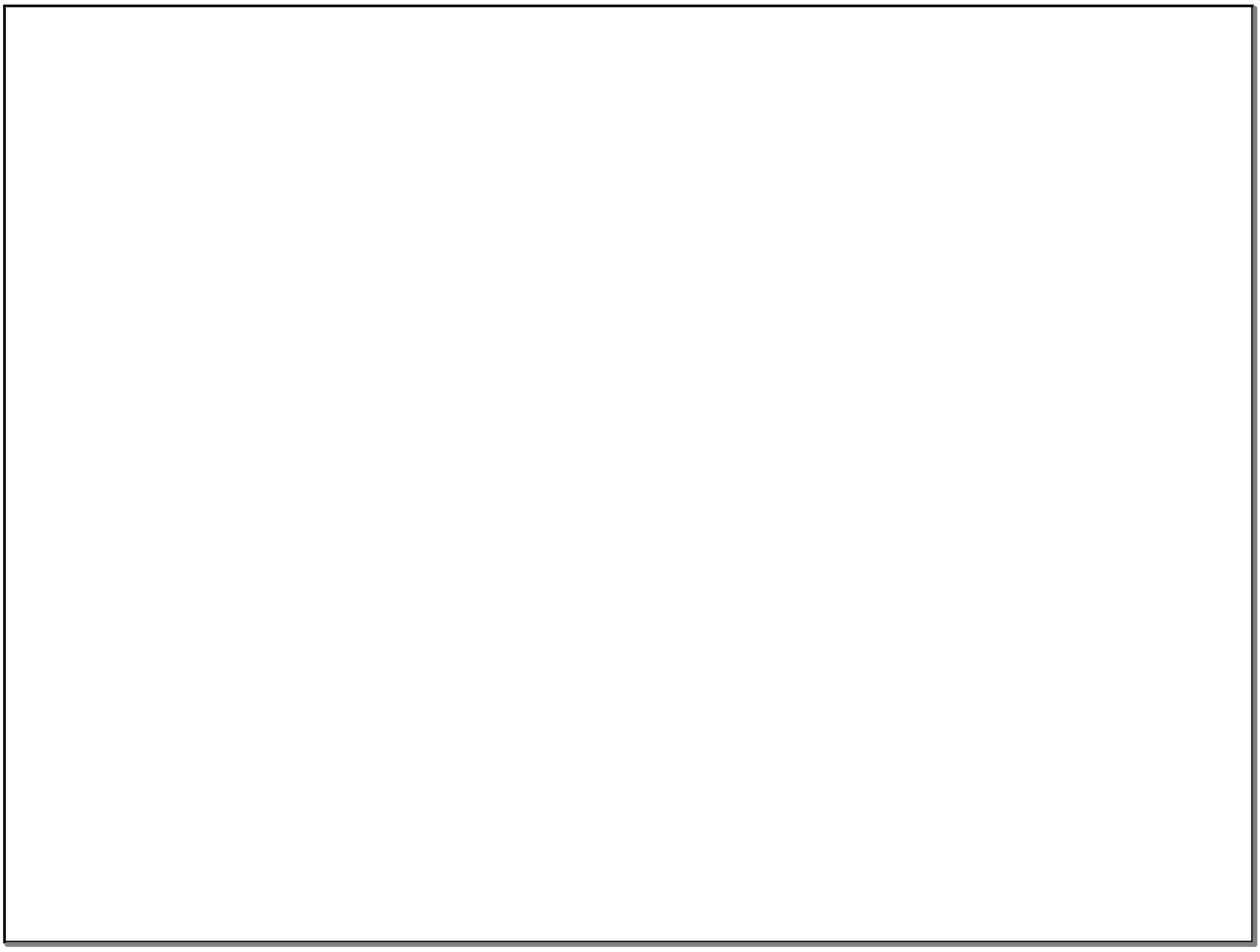


D: $(-\infty, \infty)$
R: $[2, \infty)$

Graphing Piecewise Functions

Ex. #3 Graph $f(x)=\begin{cases} x+6, x\le -3 \\ -\frac{2}{3}x-3, x>-3 \end{cases}$



Graphing Piecewise Functions

Ex. #4 Graph $f(x)=\begin{cases} 3, -1\le x<2 \\ 5, 2\le x<4 \\ 8, 4\le x<6 \end{cases}$