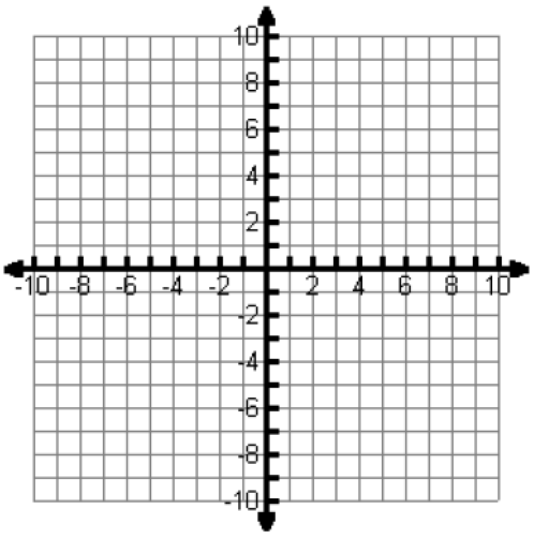
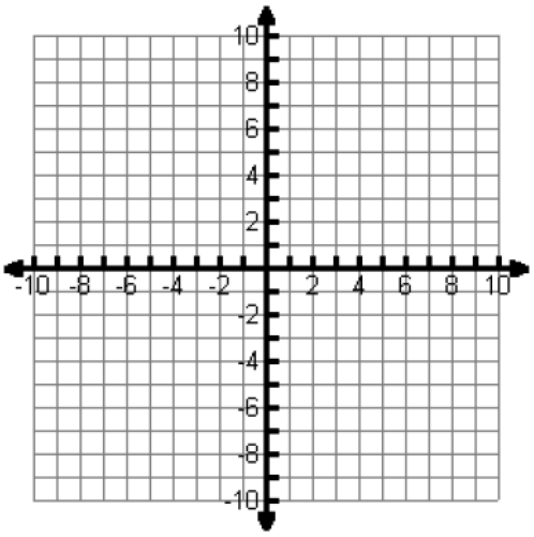
Piecewise Functions

Part I. Graph each of the following piecewise functions. Identify any points of discontinuity.

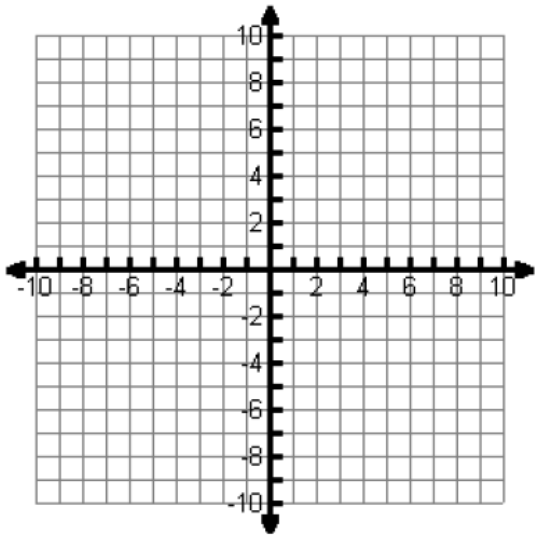
1. $$f(x)=\begin{cases} x+5 & \text{if} \quad x<-2 \\ -4 & \text{if} \quad x\geq -2 \end{cases}$$



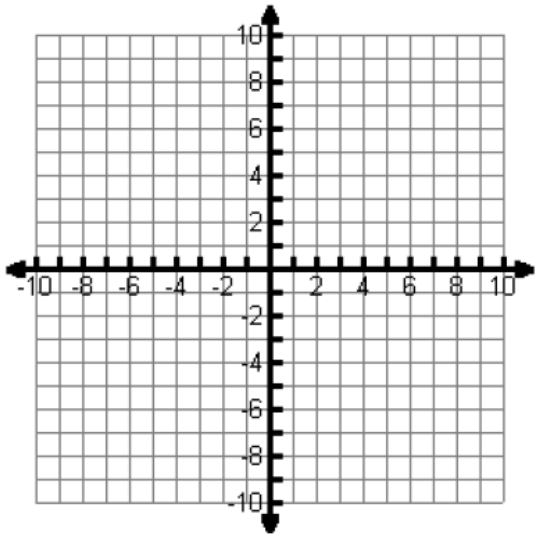
2. $$f(x)=\begin{cases} 2x+1 & \text{if} \quad x<1 \\ -2x+3 & \text{if} \quad x\geq 1 \end{cases}$$



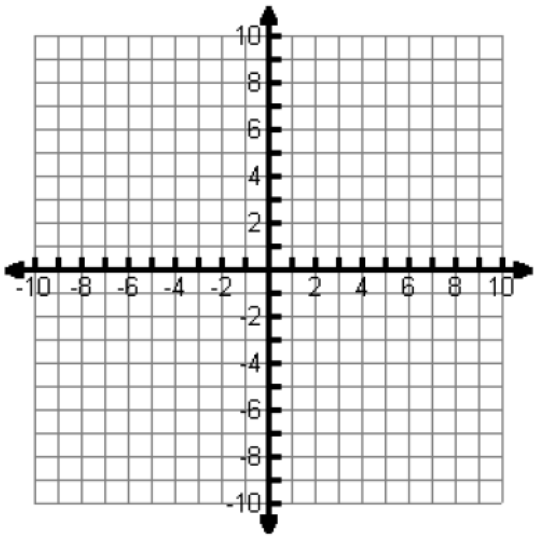
3. $f(x)=\begin{cases}-2x-4 & \text{if} \quad x\le 2\\ 4x-9 & \text{if} \quad x>2\end{cases}$



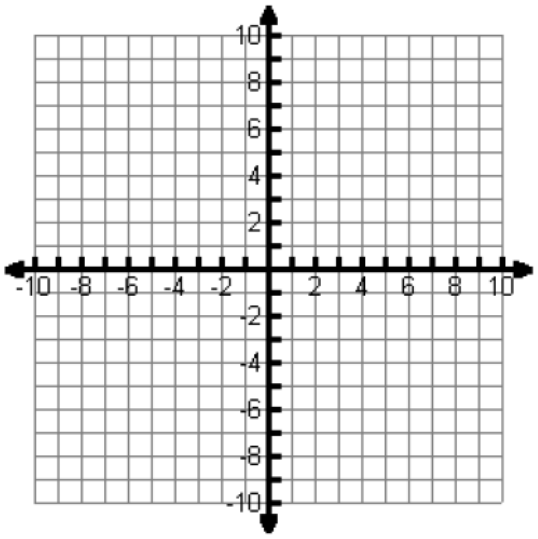
4. $f(x)=\begin{cases}x-1 & \text{if} \quad x\le -2\\ 2x-1 & \text{if} \quad -2<x\le 4\\ -3x+8 & \text{if} \quad x>4\end{cases}$



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



6. $f(x)=\begin{cases} 5 & \text{if } x < -2 \\ \frac{1}{2}x-6 & \text{if } -2 \le x \le 6 \\ -2x+10 & \text{if } x > 6 \end{cases}$



Part II. Evaluate the piecewise function for the given values of x.

1. $f(x)=\begin{cases} x+5 & \text{if} \quad x<-2 \\ -4 & \text{if} \quad x\geq -2 \end{cases}$

$f(3)=$ $\qquad$ $f(-4)=$ $\qquad$ $f(-2)=$

2. $f(x)=\begin{cases} 2x+1 & \text{if} \quad x<1 \\ -2x+3 & \text{if} \quad x\geq 1 \end{cases}$

$f(-2)=$ $\qquad$ $f(6)=$ $\qquad$ $f(1)=$

3. $f(x)=\begin{cases} -2x-4 & \text{if} \quad x\leq 2 \\ 4x-9 & \text{if} \quad x>2 \end{cases}$

$f(-4)=$ $\qquad$ $f(8)=$ $\qquad$ $f(2)=$

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

$f(-1)=$ $\qquad$ $f(-4)=$ $\qquad$ $f(5)=$

5. $f(x)=\begin{cases} x & \text{if} \quad x\leq -1 \\ -x+4 & \text{if} \quad x>-1 \end{cases}$

$f(-4)=$ $\qquad$ $f(0)=$ $\qquad$ $f(3)=$

6. $f(x)=\begin{cases} 5 & \text{if} \quad x<-2 \\ \frac{1}{2}x-6 & \text{if} \quad -2\leq x\leq 6 \\ -2x+10 & \text{if} \quad x>6 \end{cases}$

$f(-4)=$ $\qquad$ $f(8)=$ $\qquad$ $f(-2)=$