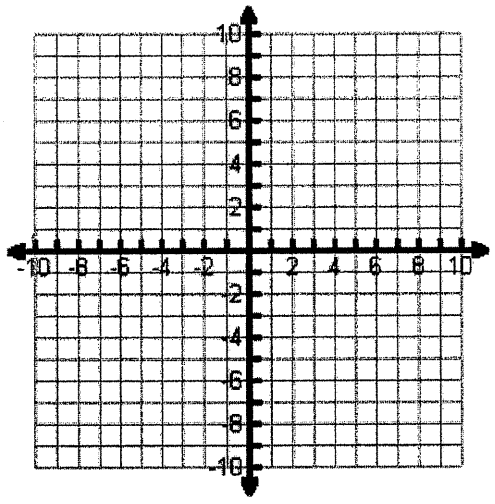
Graphing Piecewise Functions Practice Problems

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

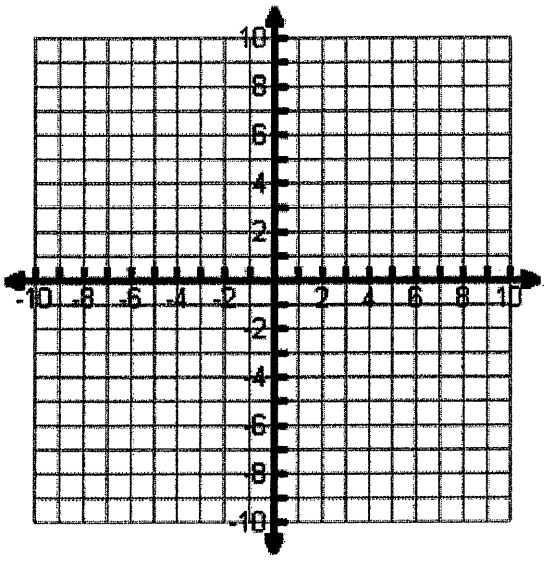


Domain:_____

Range: _____

2)

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

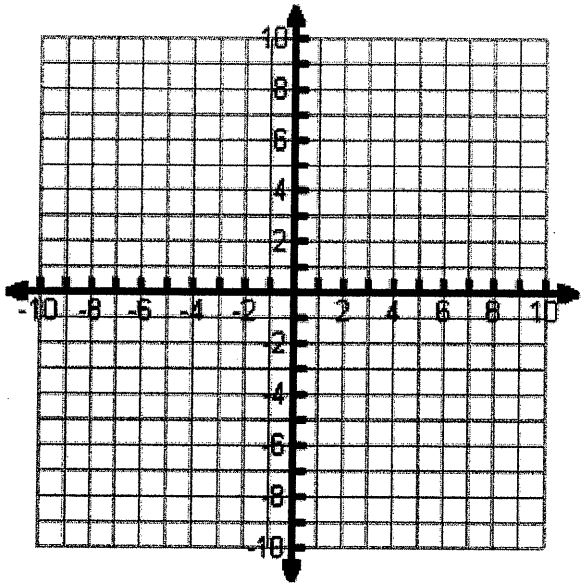


Domain:_____

Range: _____

3)

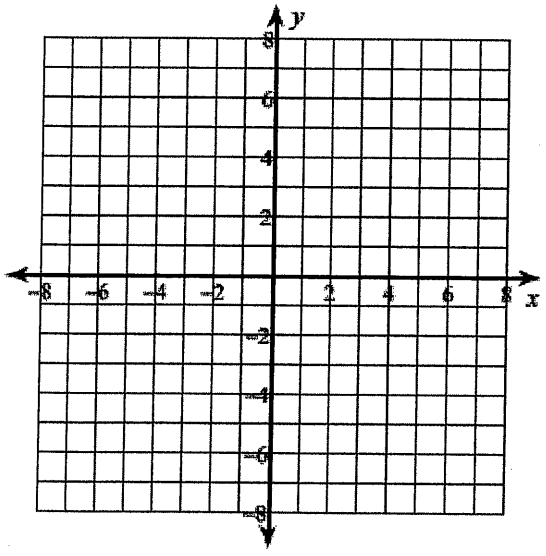
$$f(x)=\begin{cases}5 & \text{if} \quad x<-2 \\ \frac{1}{2}x-6 & \text{if} \quad -2\le x\le 6 \\ -2x+10 & \text{if} \quad x>6\end{cases}$$



Domain:_____

Range: _____

4) $g(x)=\begin{cases}-6, & x<-2 \\ (x+1)^4, & x\ge -2\end{cases}$



Domain: _____Range: _____

Graphing Piecewise Functions Practice Problems

Key

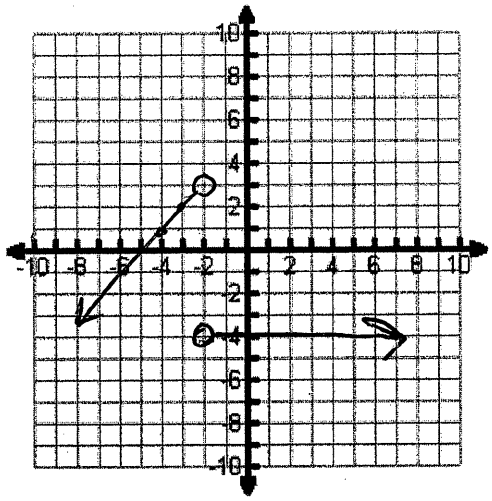
1. $f(x)=\begin{cases} x+5 & \text{if } x<-2 \\ -4 & \text{if } x\geq -2 \end{cases}$

$y=x+5$

x	y
-2	3
-3	2
-4	1

$y=-4$

x	y
-2	-4
-1	-4
0	-4
1	-4



Domain: $(-\infty,-2),(-2,\infty)$

Range: $(-\infty,3)$

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

$y=x-1$

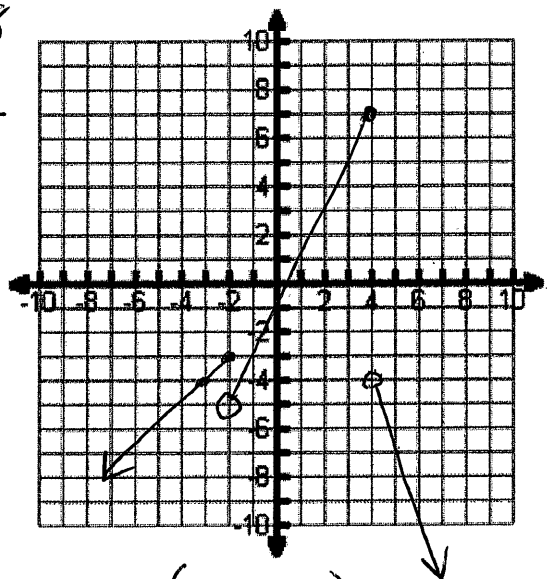
x	y
-2	-3
-3	-4
-4	-5

$y=2x-1$

x	y
-2	-5
-1	-3
0	-1
1	1
2	3
3	5
4	7

$y=-3x+8$

x	y
4	-4
5	-7
6	-10



Domain: $(-\infty,\infty)$

Range: $(-\infty,7]$

3)

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

$y=5$

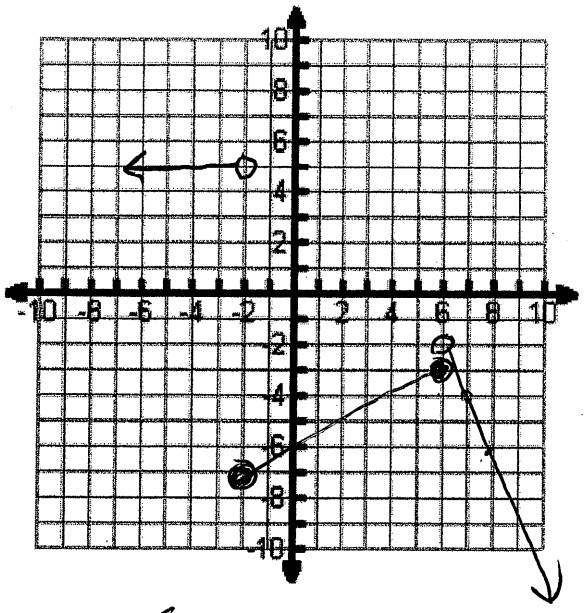
x	y
-2	5
-3	5
-4	5

$y=\frac{1}{2}x-6$

x	y
-2	-7
-1	-6.5
0	-6
⋮	
6	-3

$y=-2x+10$

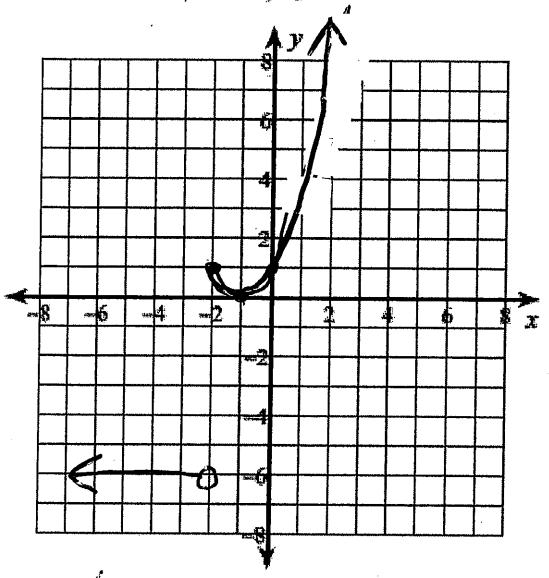
x	y
6	-2
7	-4
8	-6



Domain: $(-\infty, \infty)$

Range: $(-\infty, -2), [5]$

4) $g(x)=\begin{cases}-6, & x<-2\\ (x+1)^4, & x\ge -2\end{cases}$



$y=-6$

x	y
-2	-6
-3	-6
-4	-6

$y=(x+1)^4$

x	y
-2	1
-1	0
0	1
1	16
2	81

Domain: $(-\infty, +\infty)$ Range: $[-6], [0, \infty)$