

Part 1. Carefully graph each of the following. Identify whether or not the graph is a function. Then, evaluate the graph at any specified domain value. You may use your calculators to help you graph, but you must sketch it carefully on the grid!

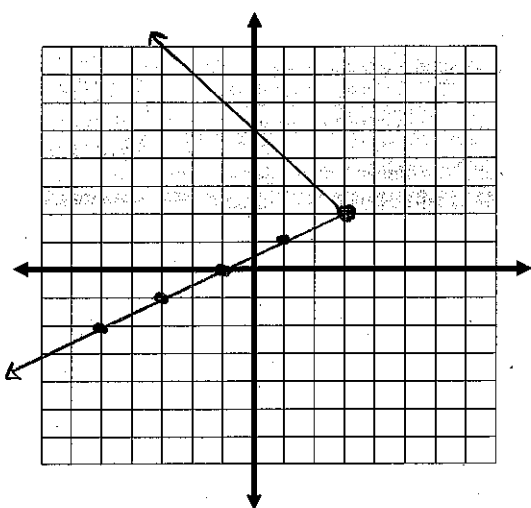
1. $f(x) = \begin{cases} x+5 & x \leq -2 \\ -2x-1 & x \geq -2 \end{cases}$

Function? Yes or No

$f(3) = -7$

$f(-4) = 1$

$f(-2) = 3$



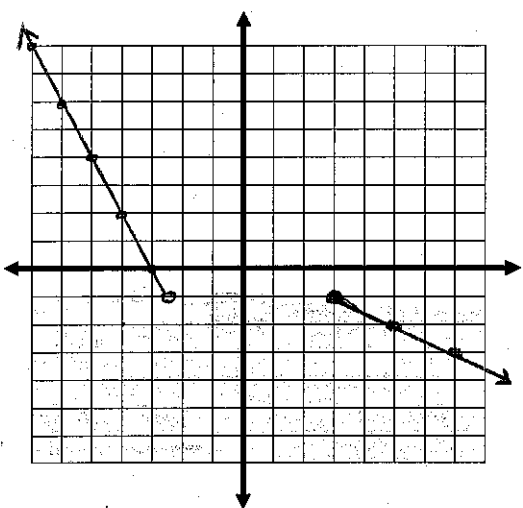
2. $f(x) = \begin{cases} 2x+1 & x \leq -1 \\ x-3 & x < 1 \\ \frac{x}{2} & x > 1 \end{cases}$

Function? Yes or No

$f(-2) = -4$

$f(6) = 13$

$f(1) = 3$



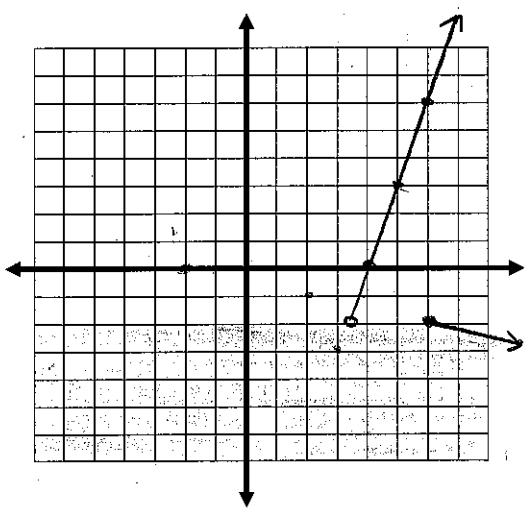
3. $f(x) = \begin{cases} 4x-2 & x \geq 2 \\ -x+4 & x < 2 \end{cases}$

Function? Yes or No

$f(-4) = 5\frac{1}{3}$

$f(8) = 30$

$f(2) = 6$



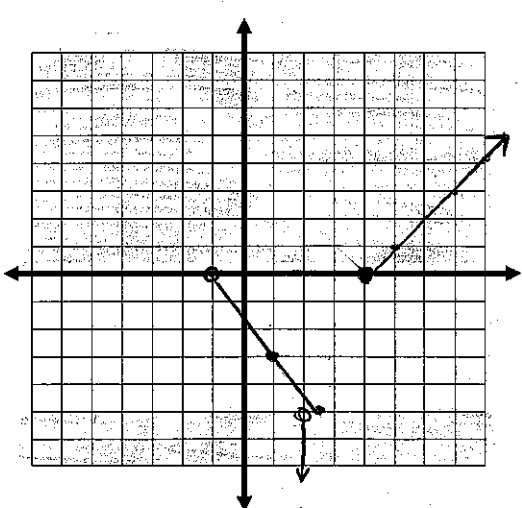
4. $f(x) = \begin{cases} -x+4 & x \leq 0 \\ \frac{2x}{3}-1 & 0 < x \leq 5 \\ 3 & x > 5 \end{cases}$

Function? Yes or No

$f(-2) = 6$

$f(0) = 4$

$f(5) = 2\frac{1}{3}$



$$f(x) = \begin{cases} -x+1 & x \leq 0 \\ \frac{4x}{3} - 4 & x > 0 \end{cases}$$

Function? Yes or No

$$f(-4) = 5$$

$$f(0) = 1$$

$$f(3) = -7$$

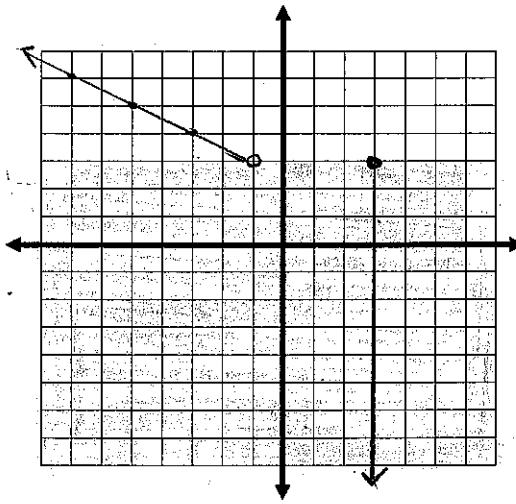
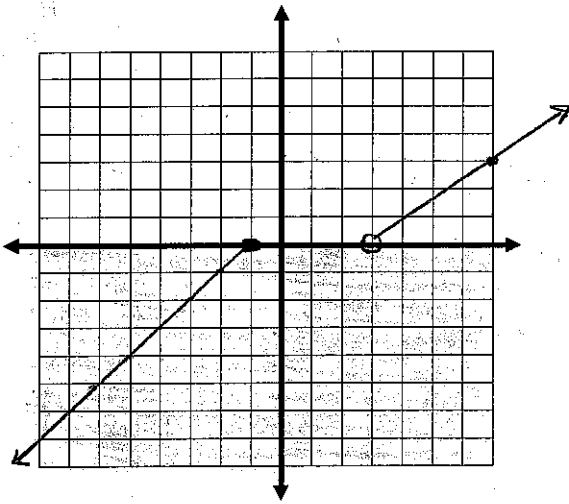
$$f(x) = \begin{cases} -3 & x \leq 3 \\ 2x-5 & x > 3 \end{cases}$$

Function? Yes or No

$$f(-4) = -3$$

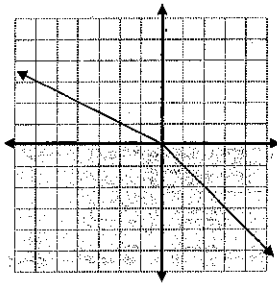
$$f(0) = -3$$

$$f(3) = 1$$



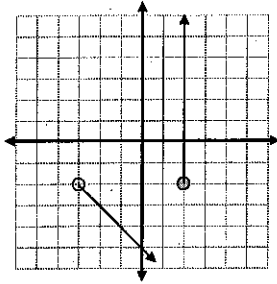
Part II. Write equations for the piecewise functions whose graphs are shown below. Assume that the units are 1 for every tic mark.

7.



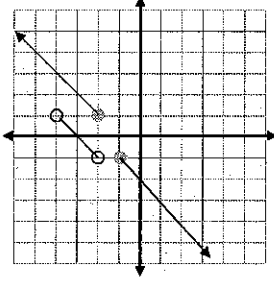
$$\begin{cases} y = x & x < 0 \\ y = 2x & x > 0 \end{cases}$$

8.



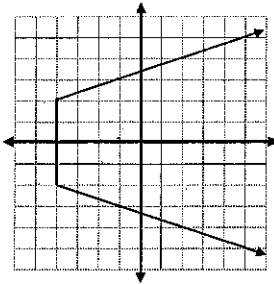
$$\begin{cases} y = x+5 & x < -2 \\ y = -2 & x \geq -2 \end{cases}$$

9.



$$\begin{cases} y = x+2 & x \leq -1 \\ y = x+3 & -1 < x < 1 \\ y = x+1 & x \geq 1 \end{cases}$$

10.



$$\begin{cases} y = -3x+10 & x < -2 \\ y = 4 & -2 < x < 2 \\ y = 3x+10 & x > 2 \end{cases}$$