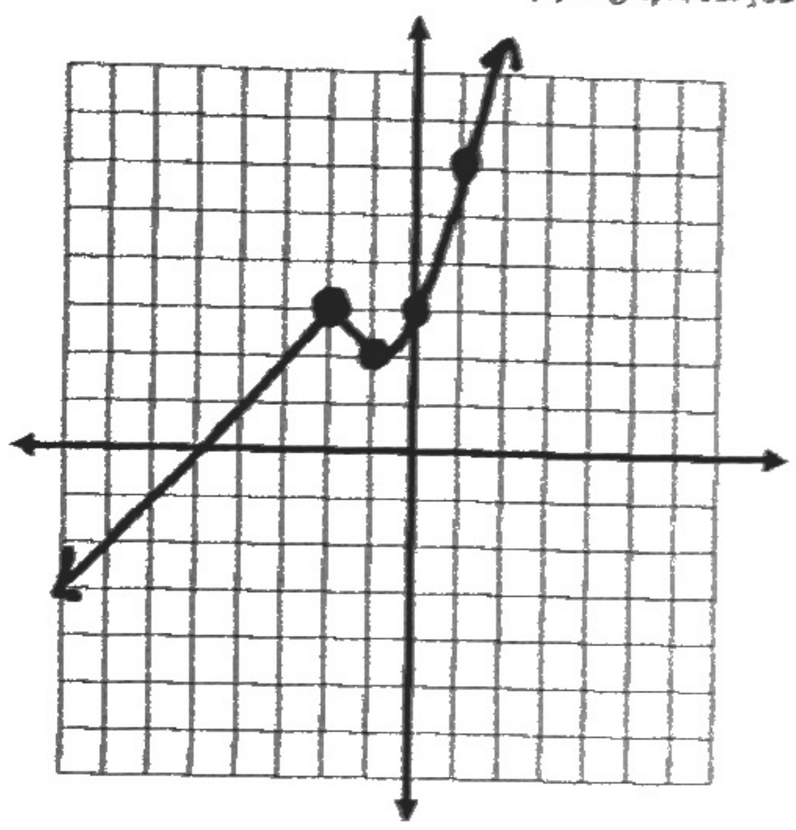
Worksheet P[redacted]e Functions

Name: KEY

Part I: Carefully graph each of the following. Identify whether or not he 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. $f(x) = \begin{cases} x+5 & x < -2 \\ x^2+2x+3 & x \geq -2 \end{cases}$



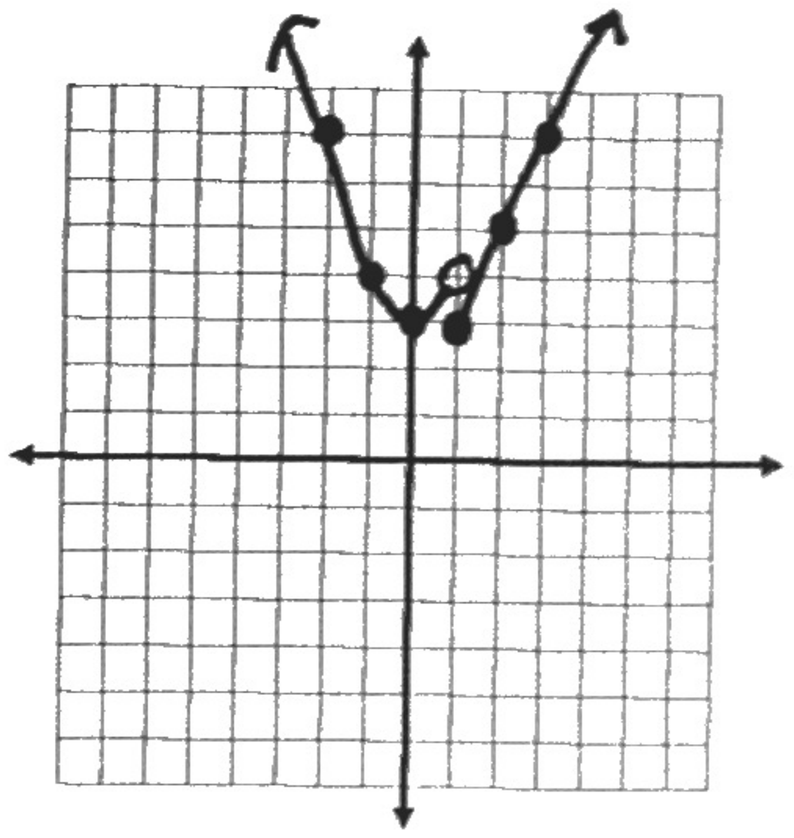
Function? (Yes) or No

$f(3) =$ [redacted] 18

$f(-4) =$ 1

$f(-2) =$ 3

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



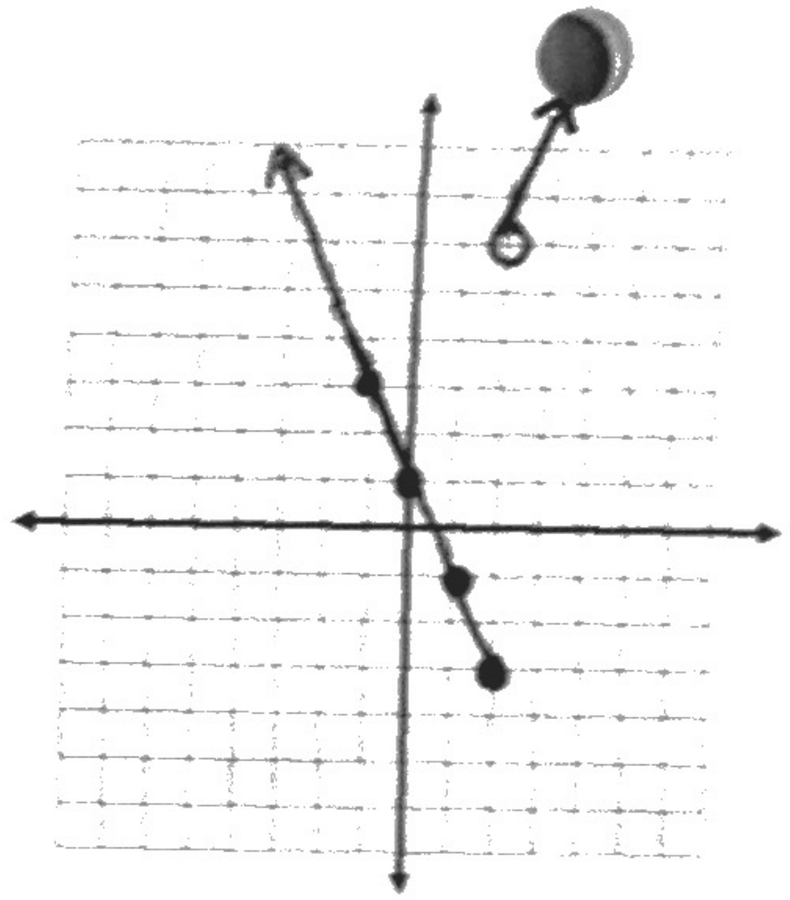
Function? (Yes) or No

$f(-2) =$ 7

$f(6) =$ 13

$f(1) =$ 3

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



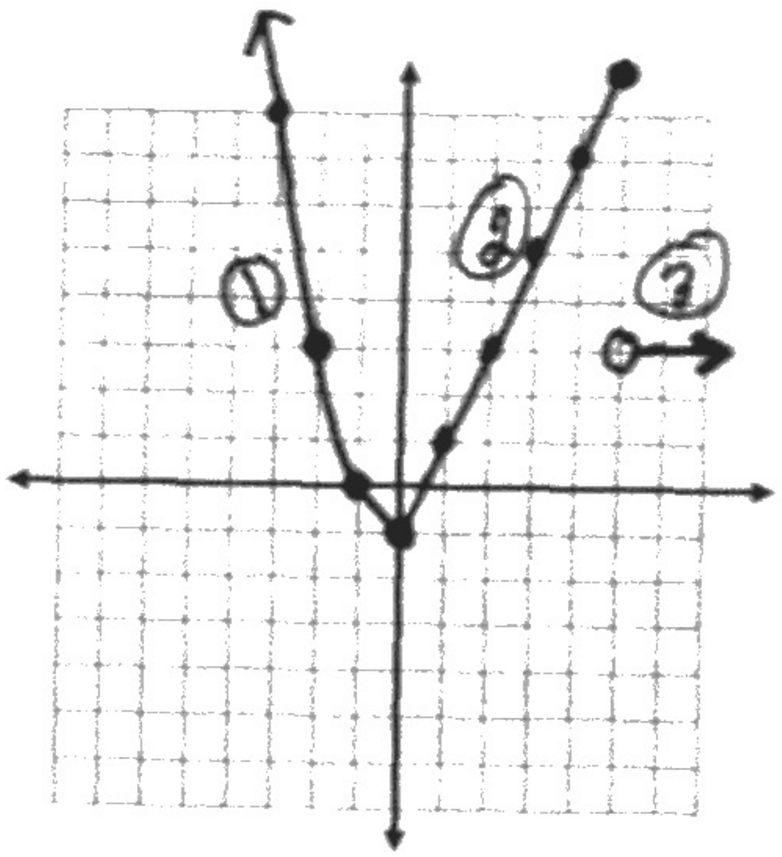
Function? (Yes) or No

$f(-4) =$ 9

$f(8) =$ [redacted] 36

$f(2) =$ −3

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



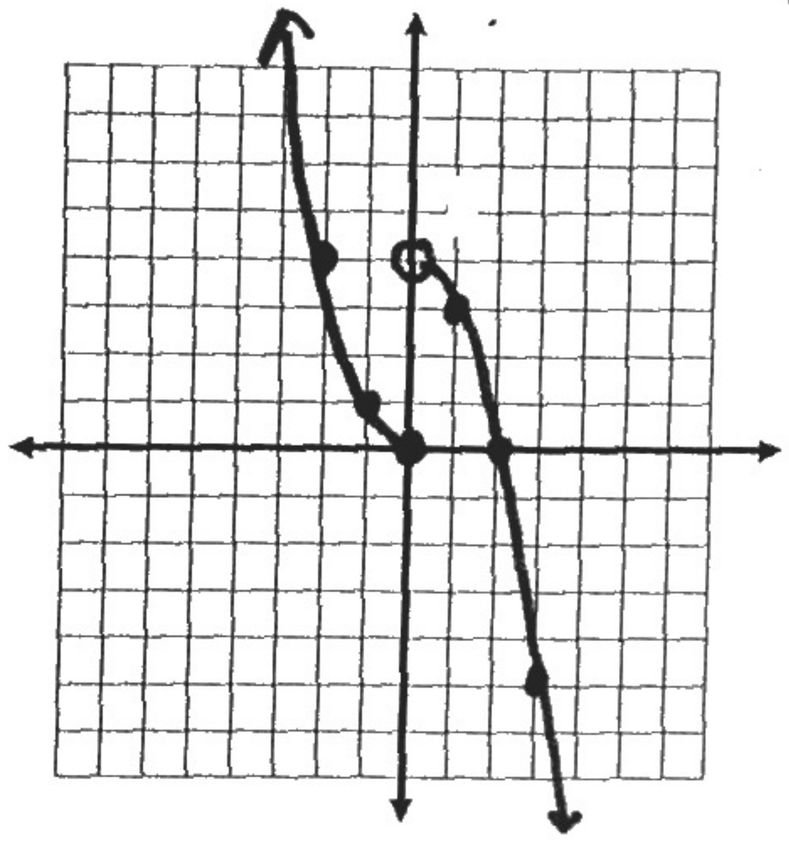
Function? (Yes) or No

$f(-2) =$ 3

$f(0) =$ −1

$f(5) =$ 9

5. $f(x) = \begin{cases} x^2 & x \le 0 \\ -x^2 + 4 & x > 0 \end{cases}$



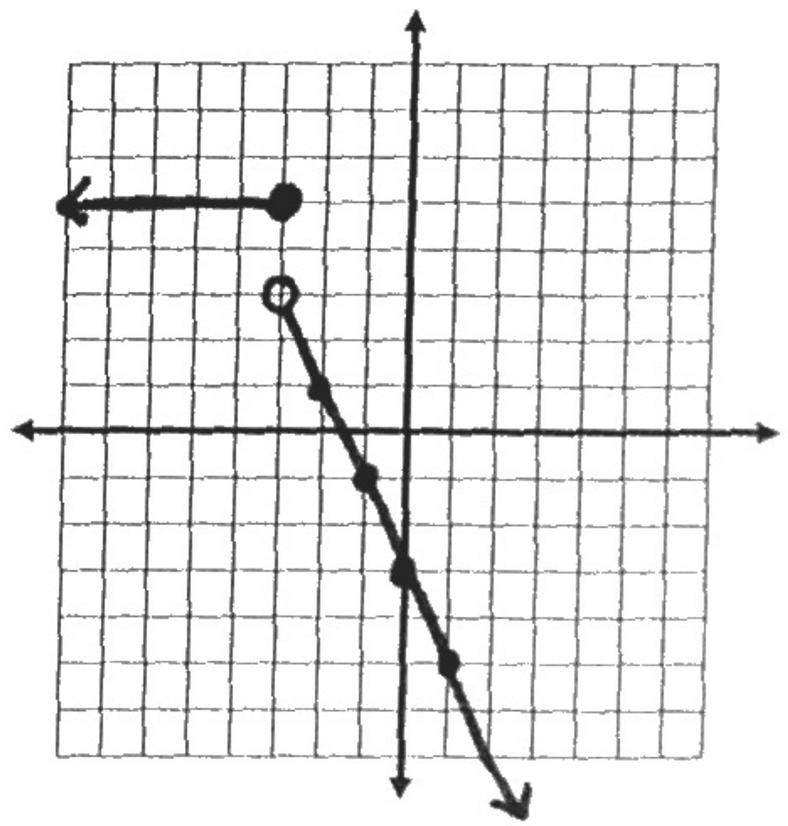
Function? (Yes) or No

$f(-4) =$ 16

$f(0) =$ 0

$f(3) =$ −5

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



Function? (Yes) or No

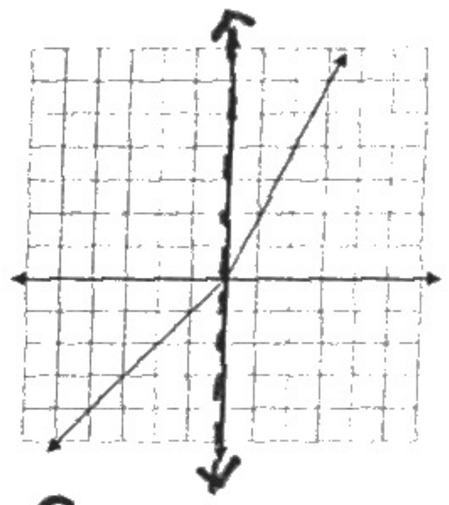
$f(-4) =$ 5

$f(0) =$ −3

$f(3) =$ −9

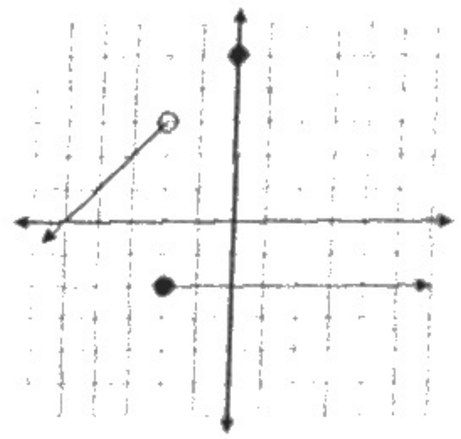
Part II. Write equations for the piecewise functions whose graphs are shown below. Assume that the units are 1 for every tic marc.

7.



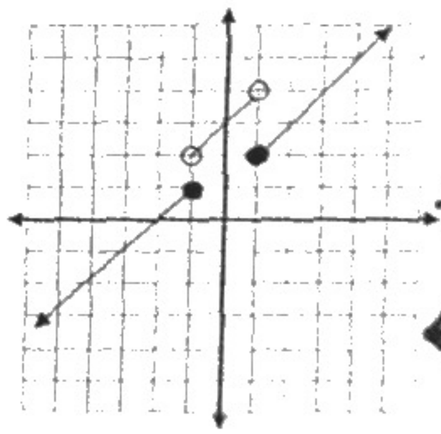
$f(x) = \begin{cases} x & x \le 0 \\ 2x & x > 0 \end{cases}$

8.



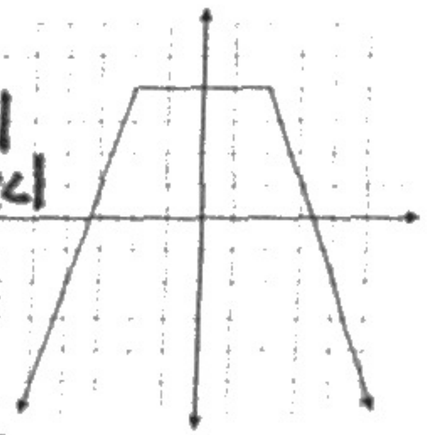
$f(x) = \begin{cases} x+5 & x < -2 \\ -2 & x \ge -2 \end{cases}$

9.



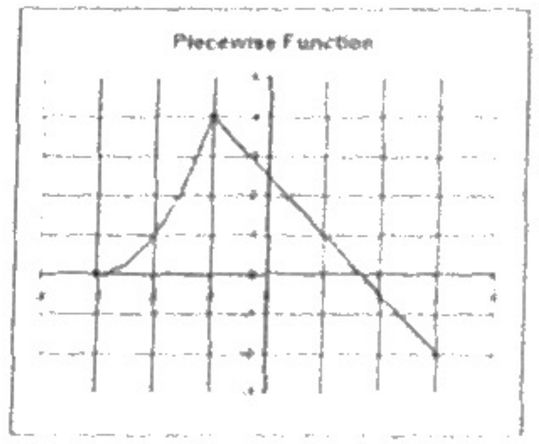
$f(x) = \begin{cases} x+2 & x \le -1 \\ x+3 & -1 < x < 1 \\ x+1 & x \ge 1 \end{cases}$

10.



$f(x) = \begin{cases} 3x+10 & x \le -2 \\ 4 & -2 < x < 2 \\ -3x+10 & x \ge 2 \end{cases}$

11.



$f(x) = \begin{cases} (x+3)^2 & -3 \le x \le -1 \\ \frac{-3x+5}{2} & x > -1 \end{cases}$

$\frac{-3}{2}x + \frac{5}{2}$ OR