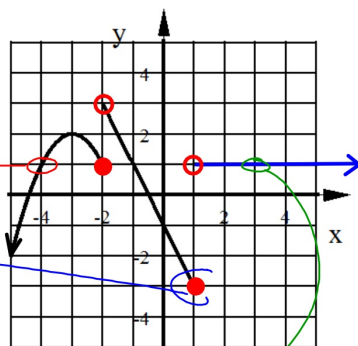## 2. Use this graph.

a) Find $f(-4) = 1$

b) Find $f(1) = -3$

c) Find $f(3) = 1$

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3. Graph this piecewise function

$$f(x) = \begin{cases} 2|x+2| - 4 & \text{if } -4 \le x < 2 \\ -4x + 9 & \text{if } x \ge 2 \end{cases}$$

inbetween these lines you'll see a V-shape

to the right you'll see -4x + 9

this is a V-shape that moved 2 left 4 down, opens up and sides have a slope of 2/1. The left endpt is a closed circle and the right endpt is an open circle.

this is a line with a y-int of 9 and a slope of -4. The y-int can't be plotted so you can use a table of values to find a starting point then use the slope to find other points. The best value to use as a starting point is x = 2

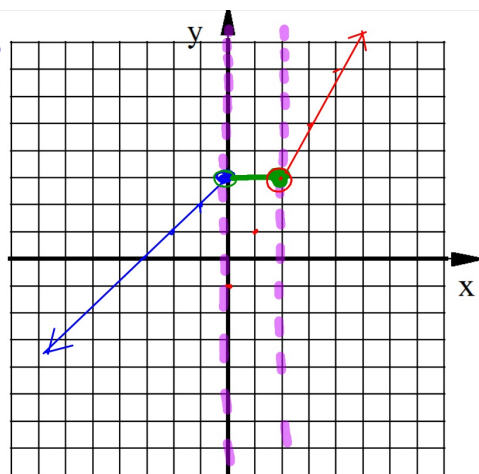| x	y
2	1
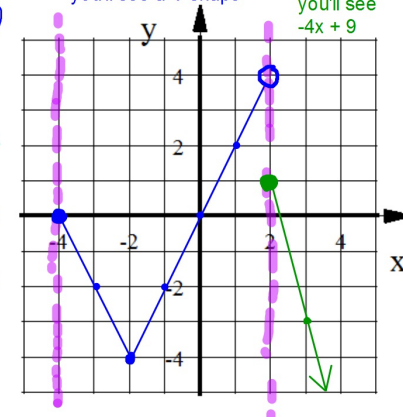
2.

$$f(x) = \begin{cases} x+3 & , \ x \le 0 \\ 3 & , \ 0 < x \le 2 \\ 2x-1 & , \ x > 2 \end{cases}$$

For each line you could plot the y-intercept and then use slope to find other points. But only connect the points within the domain of each piece. For example, for 2x - 1, only connect the dots starting where x=2 then forever to the right.
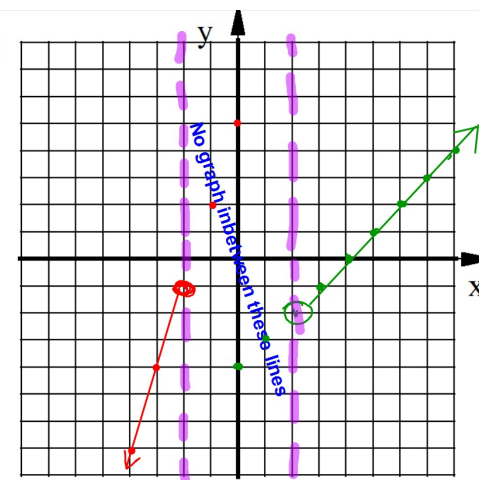
Evaluate the following:

$f(-1) = 2$

$f(1) = 3$

3.

$$f(x) = \begin{cases} 3x+5, \ x \le -2 \\ x-4, \ x > 2 \end{cases}$$

Evaluate the following:

$f(2) = $ Does not exist

$f(-3) = -4$

$f(0) = $ Does not exist

No graph inbetween these lines

Graph this piecewise function:

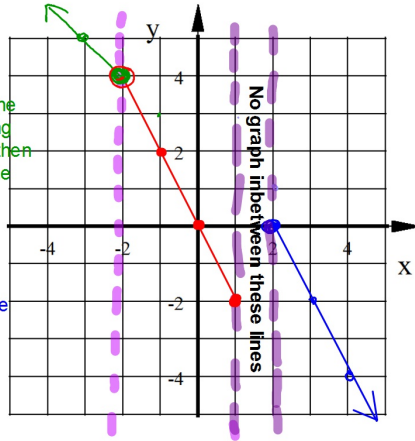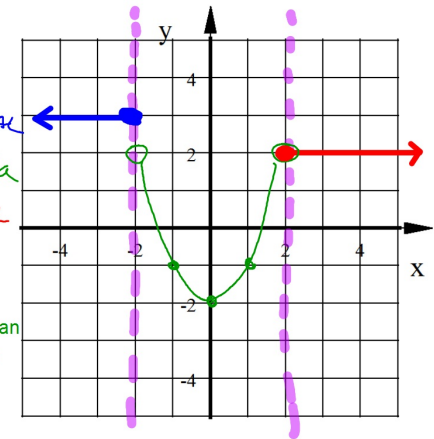$$f(x) = \begin{cases} -x+2, & \text{if } x \le -2 \\ 2|x-1|-2, & \text{if } -2<x<1 \\ -2x+4, & \text{if } x \ge 2 \end{cases}$$

$\frac{x \,|\, y}{-2 \,|\, 4}$

Find the starting point then use the slope

$\frac{x \,|\, y}{2 \,|\, 0}$

Find the starting point then use the slope

V-shape that has moved 1 right 2 down, opens up, sides have a slope of 2/1

No graph in between these lines

Graph this piecewise function:

$$f(x) = \begin{cases} 3, & \text{if } x \le -2 \quad \text{HORIZONTAL} \\ x^2-2, & \text{if } -2<x<2 \quad \text{Parabola} \\ 2, & \text{if } x \ge 2 \quad \text{HORIZONTAL} \end{cases}$$

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

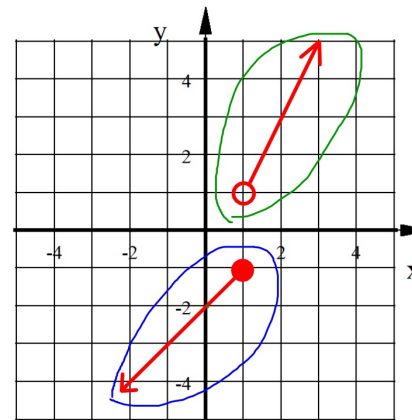For a shape you're not familiar with you can use a table of values, plot them and just connect them
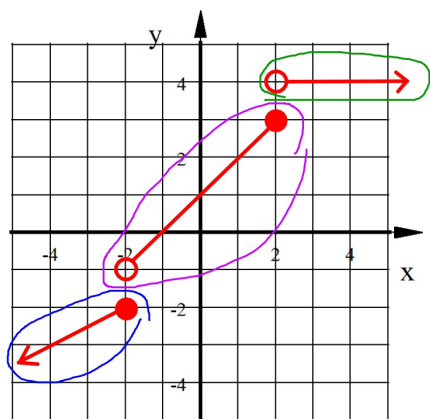
Write the rule for this piecewise function:
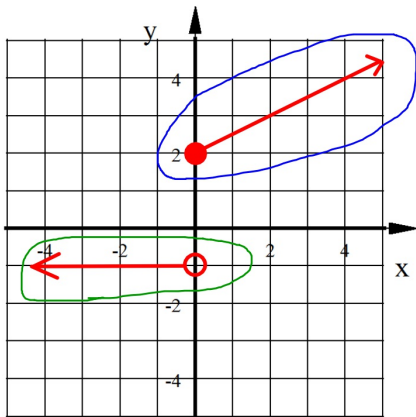
$$f(x) = \begin{cases} -1 & \text{if } x<0 \\ \frac{1}{2}x+2 & \text{if } x \ge 0 \end{cases}$$

Write the rule for this piecewise function:

$$f(x) = \begin{cases} x-2 & \text{if } x \le 1 \\ 2x-1 & \text{if } x>1 \end{cases}$$

Write the rule for this piecewise function:

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