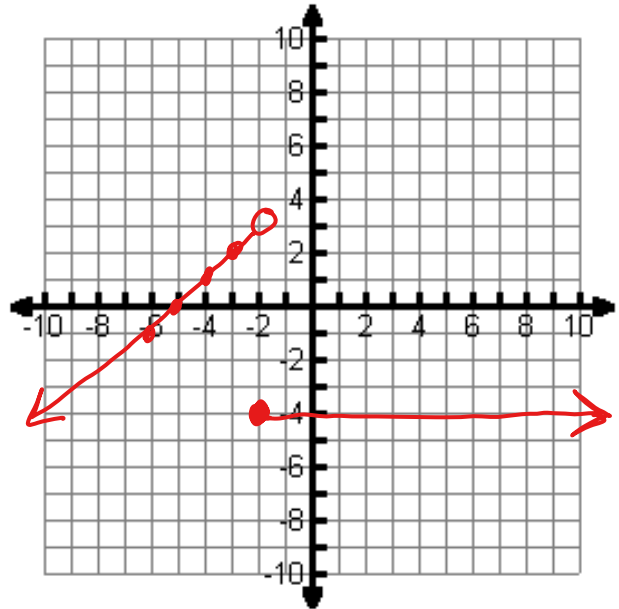


## Piecewise Functions Worksheet #2

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

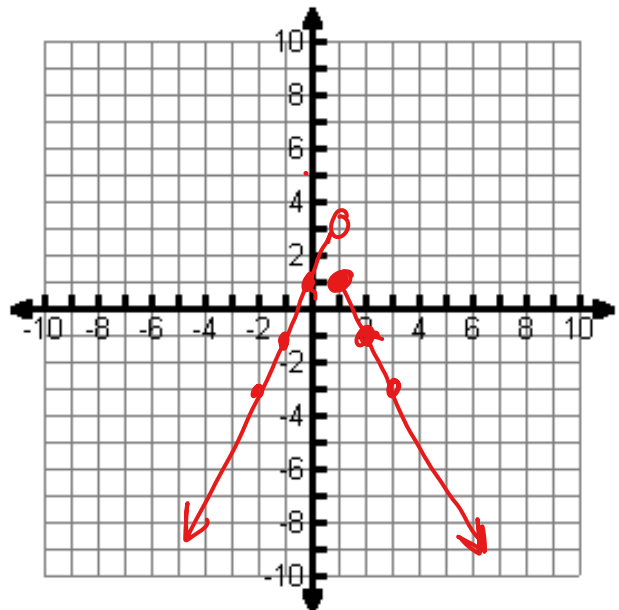
$$1. \quad f(x) = \begin{cases} x+5 & \text{if } x < -2 \\ -4 & \text{if } x \geq -2 \end{cases}$$

$(-2, 3) \circ$   
 $(-2, -4) \bullet$



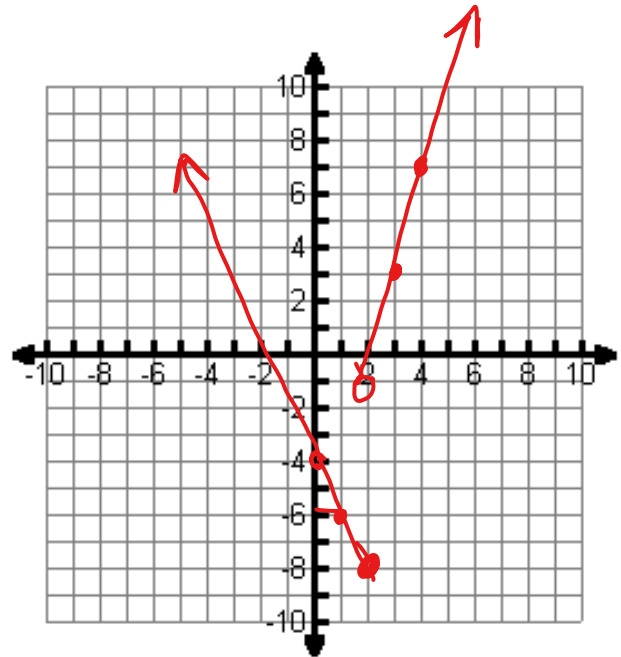
$$2. \quad f(x) = \begin{cases} 2x+1 & \text{if } x < 1 \\ -2x+3 & \text{if } x \geq 1 \end{cases}$$

$(1, 3) \circ$   
 $(1, 1) \bullet$



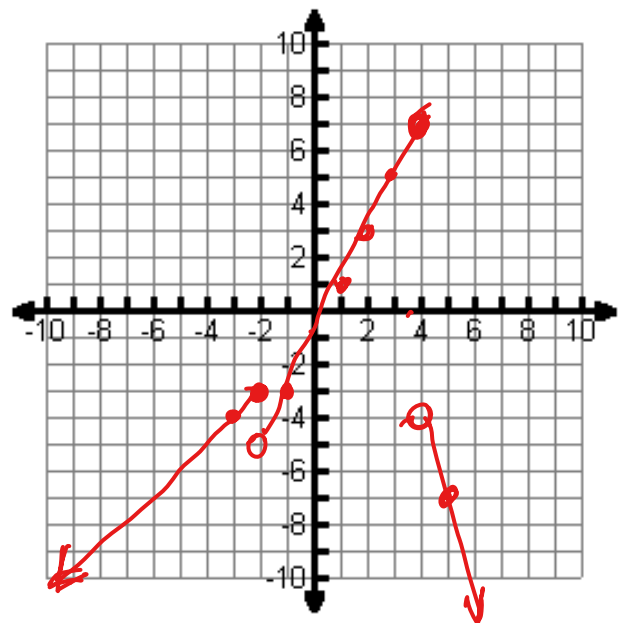
3.  $f(x) = \begin{cases} -2x - 4 & \text{if } x \leq 2 \\ 4x - 9 & \text{if } x > 2 \end{cases}$

Handwritten notes:  $(2, -8) \bullet$  and  $(2, -1) \circ$

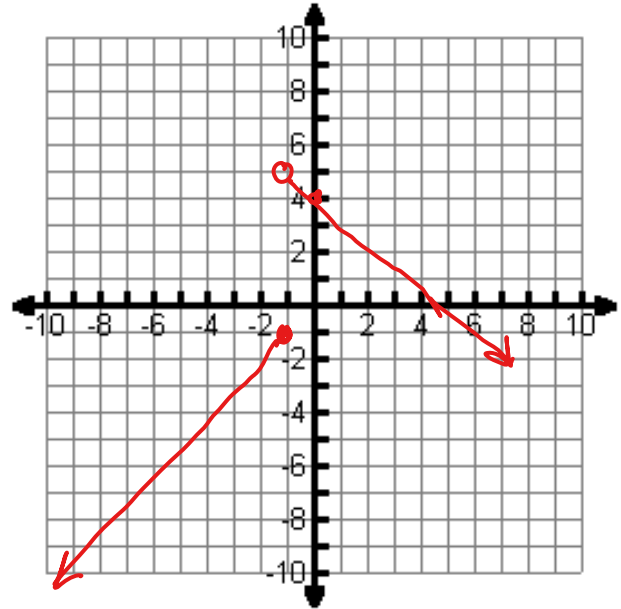


4.  $f(x) = \begin{cases} x - 1 & \text{if } x \leq -2 \\ 2x - 1 & \text{if } -2 < x \leq 4 \\ -3x + 8 & \text{if } x > 4 \end{cases}$

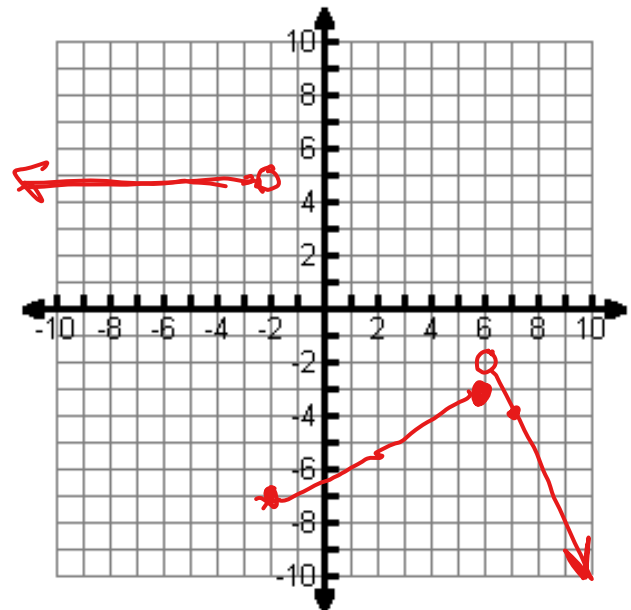
Handwritten notes:  $(-2, -3) \bullet$ ,  $(-2, -5) \circ$ ,  $(4, 7) \bullet$ , and  $(4, -4) \circ$



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



6.  $f(x) = \begin{cases} 5 & \text{if } x < -2 \\ \frac{1}{2}x - 6 & \text{if } -2 \leq x \leq 6 \\ -2x + 10 & \text{if } x > 6 \end{cases}$   $(-2, 5) \circ$   
 $(-2, -2) \bullet$   $(6, -3) \bullet$   
 $(6, -2) \circ$



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

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

$$f(3) = -4$$

$$f(-4) = 1$$

$$f(-2) = -4$$

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

$$f(-2) = -3$$

$$f(6) = -9$$

$$f(1) = 1$$

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

$$f(-4) = 4$$

$$f(8) = 23$$

$$f(2) = -8$$

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

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

$$f(-4) = -5$$

$$f(5) = -7$$

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

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

$$f(0) = 4$$

$$f(3) = 1$$

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

$$f(-4) = 5$$

$$f(8) = -6$$

$$f(-2) = -7$$