

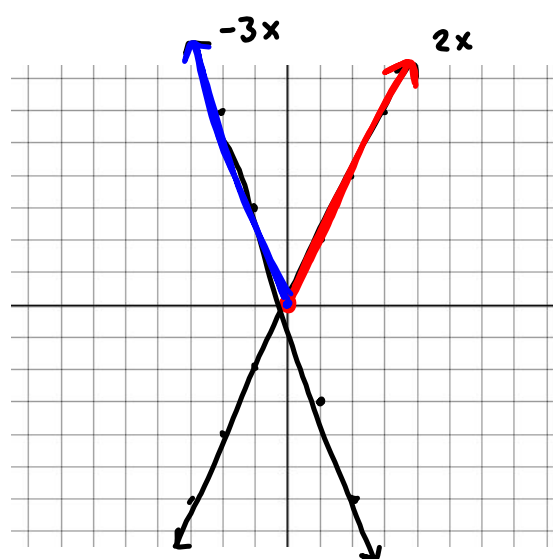
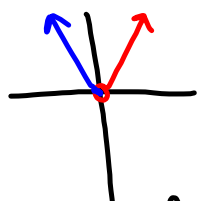
Piecewise Functions

is a function defined by two or more parts

$$f(x) = \begin{cases} 2x & \text{if } x > 0 \\ -3x & \text{if } x \leq 0 \end{cases}$$

$$y = mx + b$$

Final $F(x)$



Think: Domain of $y = 2x$ $(-\infty, \infty)$
 " $y = -3x$ $(-\infty, \infty)$

What can you see about the domain of this piecewise? $(-\infty, \infty)$

Range (piecewise) $[0, \infty)$

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

This is an example of a jump discontinuity

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

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

Evaluate

$$f(-5)$$

$$-x + 1$$

$$-(-5) + 1$$

$$f(-5) = 6$$

$$f(-2)$$

$$-x + 1$$

$$-(-2) + 1$$

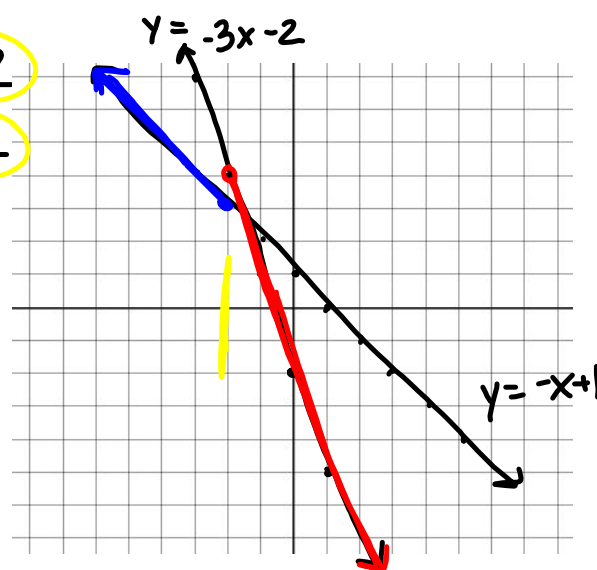
$$f(-2) = 3$$

$$f(4)$$

$$-3x - 2$$

$$-3(4) - 2$$

$$f(4) = -14$$



WS # 2

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

$$f(-1) = 2$$

$$f(1) = 3$$

