

$$f(x) = \frac{1}{x+2} + 0$$

$$VA: x = -2$$

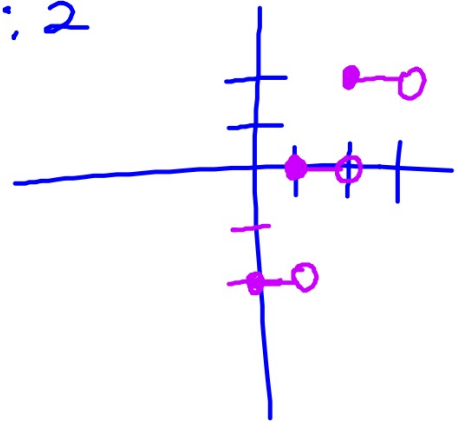
$$HA: y = 0$$

$$y = 2[x-1]$$

K.P. (1, 0)

length of bar: 1

distance: 2



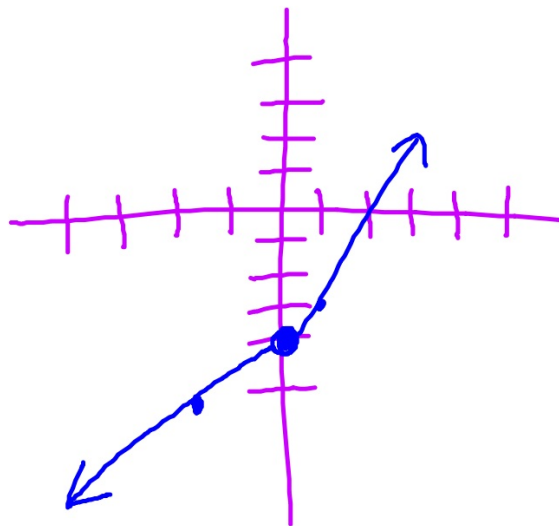
$$\textcircled{3} \quad f(x) = \begin{cases} \frac{1}{2}x - 4, & x < 0 \\ x - 4, & x \geq 0 \end{cases}$$

①

x	y
0	-4
-2	-5

②

x	y
0	-4
1	-3



More Piecewise functions

$$f(x) = \begin{cases} \frac{5}{4}x - \frac{3}{4}, & x \leq 3 \\ -x + 8, & x > 3 \end{cases}$$

①

$$m = -1$$

$(5, 3)$

$$y = mx + b$$

$$3 = -1(5) + b$$

$$8 = b$$

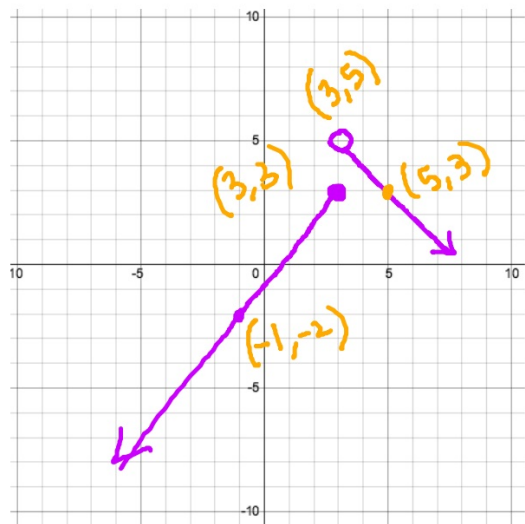
②

$$m = \frac{5}{4} \quad (-1, -2)$$

$$-2 = \frac{5}{4}(-1) + b$$

$$-2 + \frac{5}{4} = b$$

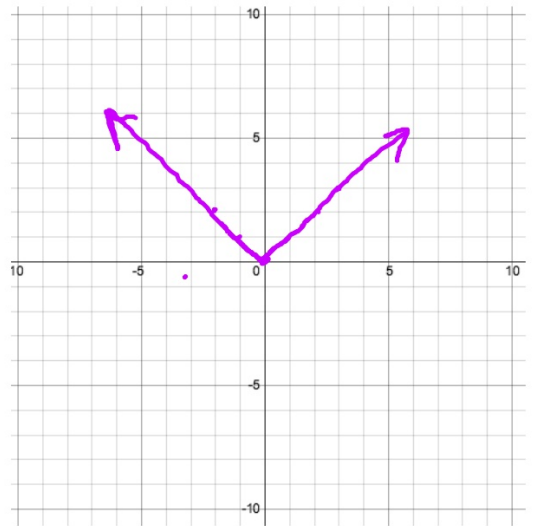
$$-\frac{3}{4} = b$$



Sketch. Rewrite the function as a piecewise function.

$$f(x) = |x|$$

$$f(x) = \begin{cases} -x & , x \leq 0 \\ x & , x > 0 \end{cases}$$



Sketch. Rewrite the function as a piecewise function.

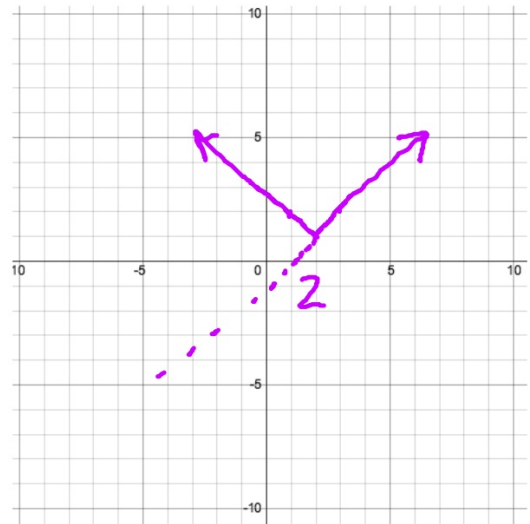
$$f(x) = |x-2| + 1$$

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

① $m = -1$ ($2, 1$)

$$y = mx + b$$

$$1 = (-1)(2) + b; b = 3$$



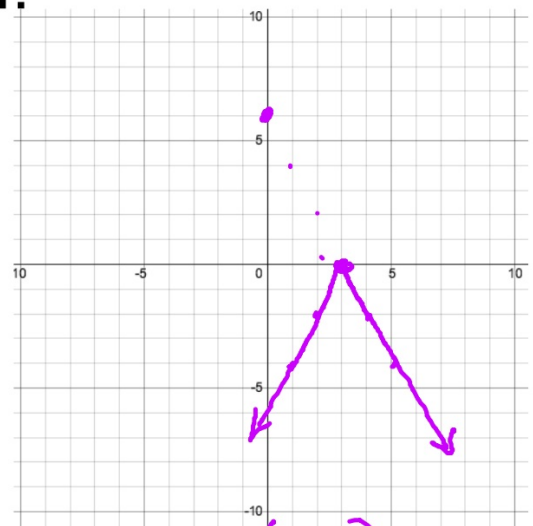
Sketch. Rewrite the function as a piecewise function.

$$f(x) = -|2x - 6|$$

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

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

$$f(x) = \begin{cases} 2x - 6, & x \leq 3 \\ -2x + 6, & x > 3 \end{cases}$$



$$\begin{aligned} m &= 2 \quad (3, 0) \\ 0 &= 2(3) + b \\ -6 &= b \end{aligned}$$

Point-slope form

$$m = 4 \quad (2, -1)$$

$$y - y_1 = m(x - x_1)$$

$$y - (-1) = 4(x - 2) \leftarrow$$

$$y + 1 = 4(x - 2)$$

$$y = 4x - 8 - 1$$

$$y = 4x - 9$$