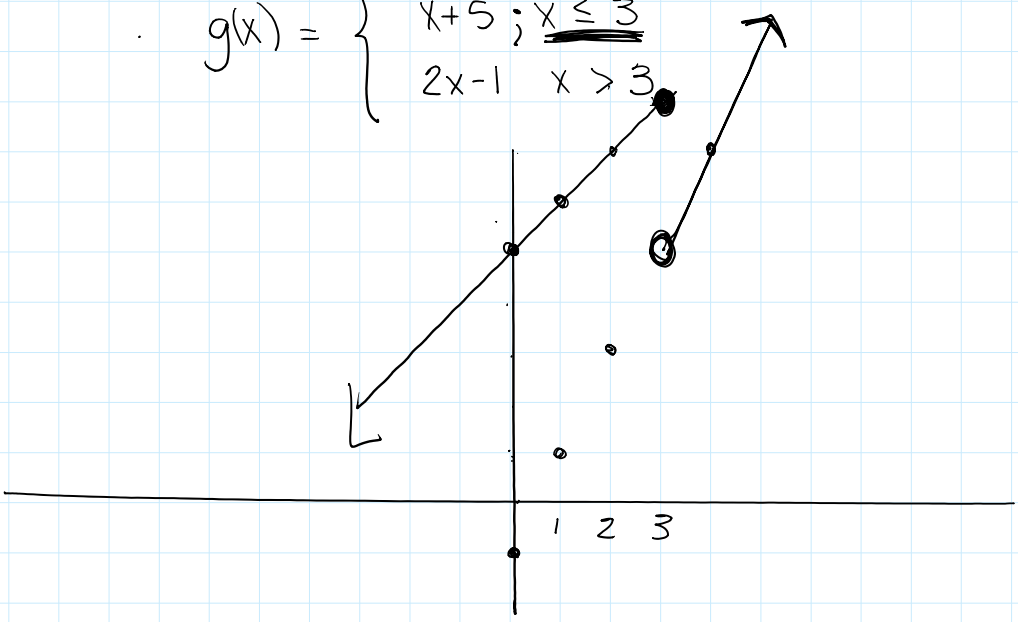
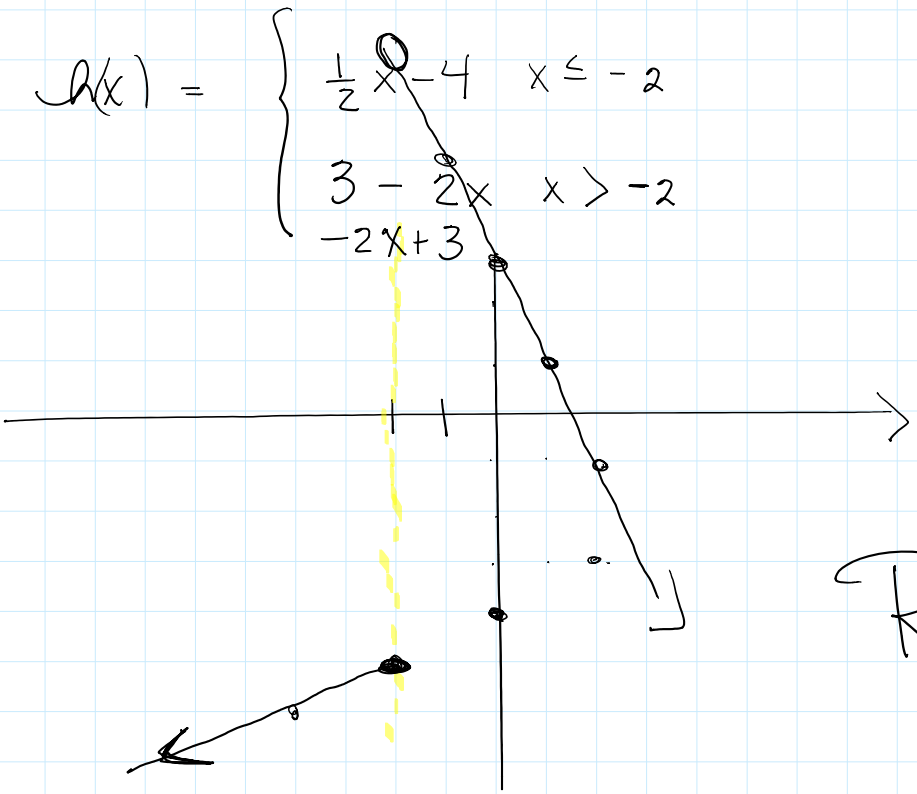
Piecewise Functions and Absolute value functions

Wednesday, November 8, 2017 11:32 AM

$$g(x) = \begin{cases} x+5 ; x \leq 3 \\ 2x-1 \quad x > 3 \end{cases}$$

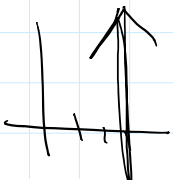


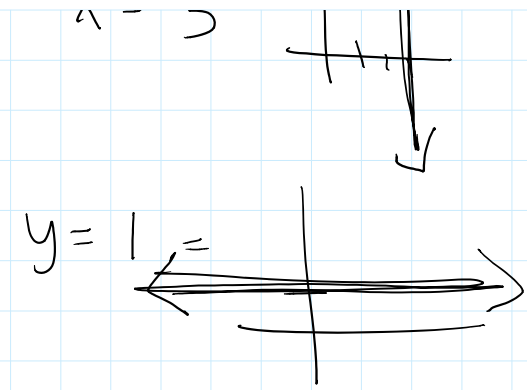
$$h(x) = \begin{cases} \frac{1}{2}x - 4 \quad x \leq -2 \\ 3 - 2x \quad x > -2 \\ -2x+3 \end{cases}$$



Recall:

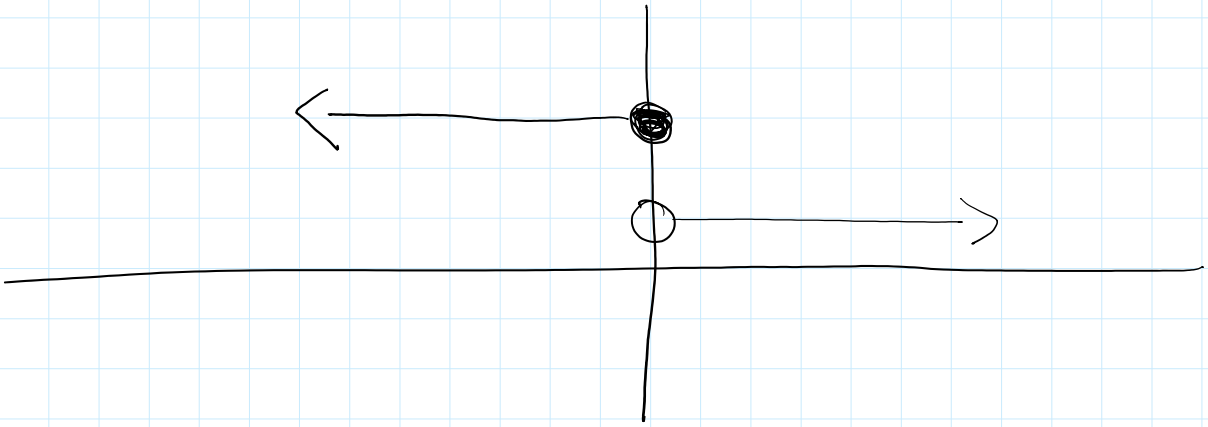
$x = 3$





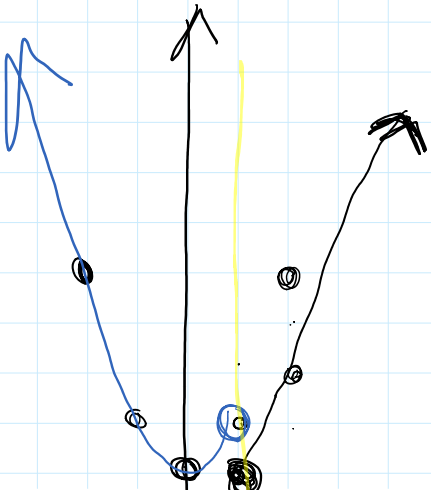
$y = 1$

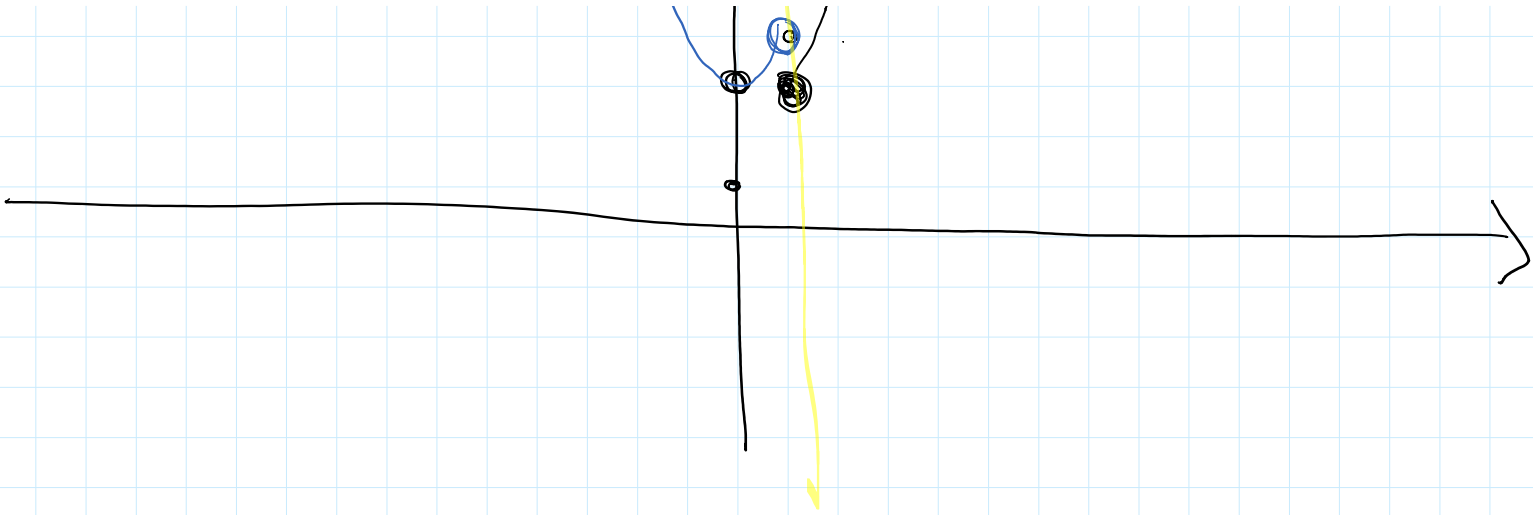
$$f(x) = \begin{cases} 3 & \text{if } x \leq 0 \\ 1 & \text{if } x > 0 \end{cases}$$



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

$f(2) = 5$





$$h(x)\begin{cases} 3x-1 & x \geq 1 \\ 2x^2+4 & x < 1 \end{cases}$$

$\nwarrow -2$

$h(3) = 3(3)-1 = 8$

$h(1) = 3(1)-1 = 2$

$h(-2) = 2(-2)^2+4 = 12$

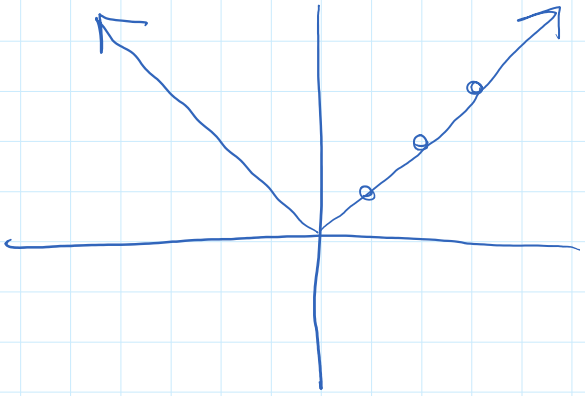
$$f(x) = \begin{cases} x+5 & x < -2 \\ x^2+6 & x \geq -2 \end{cases}$$

$f(3) = 3^2+6 = 15$

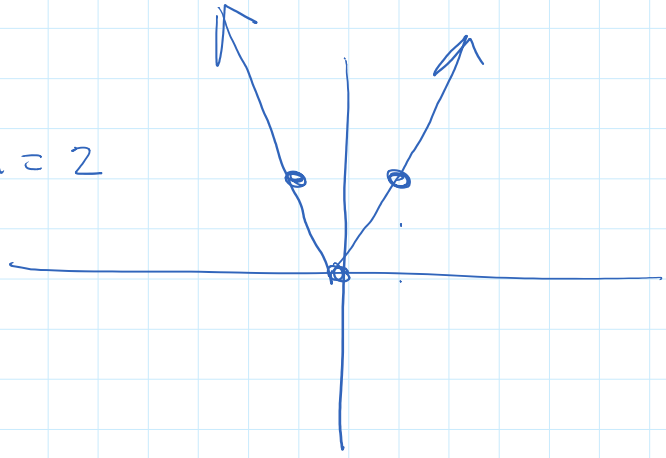
$f(-4) = -4+5 = 1$

$f(-2) = (-2)^2+6 = 10$

$y = |x|$



$y = |2x|$ $m = 2$

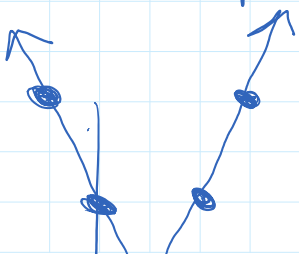


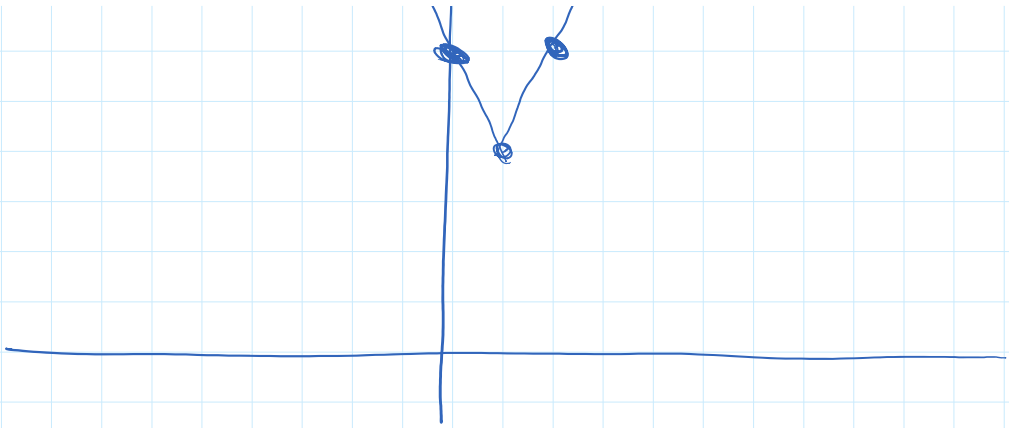
$y = a(x-h)^2 + k$ ∪ (h,k) a

$y = a|x-h| + k$ ∨ (h,k) a

∨ linear $a = m$

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





$y = -\frac{1}{2}|x-3|+1$

(3, 1)