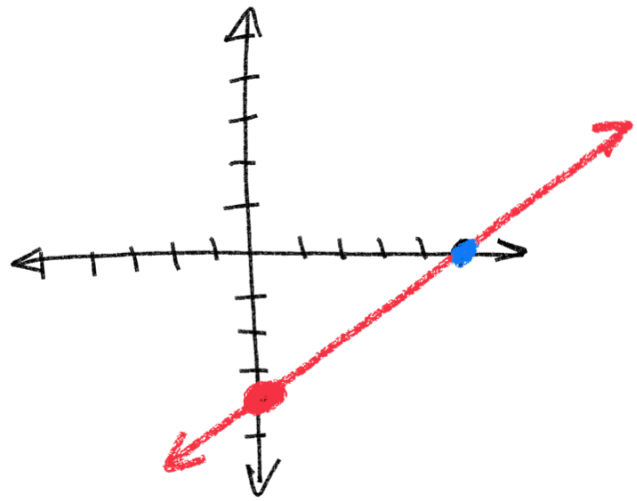
TH-G Geometry Week 9

$$\begin{array}{r} 4x - 5y = 20 \\ -4x \qquad\quad -4x \end{array}$$

$$\frac{-5y}{-5} = \frac{-4x}{-5} + \frac{20}{-5}$$

$$y = \frac{4}{5}x - 4$$

$y = mx + b$



$-5y = 20$ $\quad y = -4$ $\quad (0,-4)$

$4x = 20$ $\quad x = 5$ $\quad (5,0)$

Direct Variation

When $x = 8$, $y = 12$; $*1.5$

$x = 10$, $1.5y = 15$

$y = kx$

$\frac{12}{8} = \frac{8k}{8}$

$\frac{3}{2} = k$

$y = \frac{3}{2}x$

$y = \frac{3}{2}(10)$

$\frac{30}{2} = 15$

x	y	$\frac{y}{x}$	k
-8	4	$-\frac{4}{8}$	$-\frac{1}{2}$
-4	2	$-\frac{2}{4}$	$-\frac{1}{2}$
12	-6	$\frac{-6}{12}$	$-\frac{1}{2}$

direct variation

$y = kx$

$k = \frac{y}{x}$

$y = -\frac{1}{2}x$

$y = 6x - 4$ not direct variation

Direct Variation

$y = kx$ $\pm m$

$8x - 3y = 5x$ direct variation

$y = kx$

$x = 4$ not direct variation

$\frac{12y}{12} = \frac{4x}{12}$ $\div 4$ $\div 4$

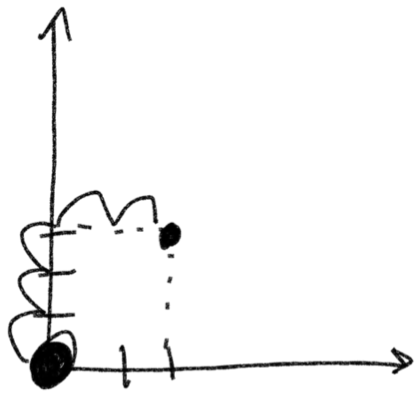
$y = \frac{1}{3}x$ direct variation

$k = \frac{1}{3}$

$2y + 8 = 4x$ not direct variation

- Linear
- Consistent slope
- origin

Direct Variation



$(2, 3)$ — x, y

$\frac{y}{x}$

$y = m(x) + b \rightarrow 0$

$m = \frac{3}{2}$

$\frac{\text{up } 3}{\text{right } 2}$

slope $= \frac{3}{2}$

$$y = \frac{3}{2}x$$

$k = \frac{y}{x}$ $\quad \frac{3}{2} = k$

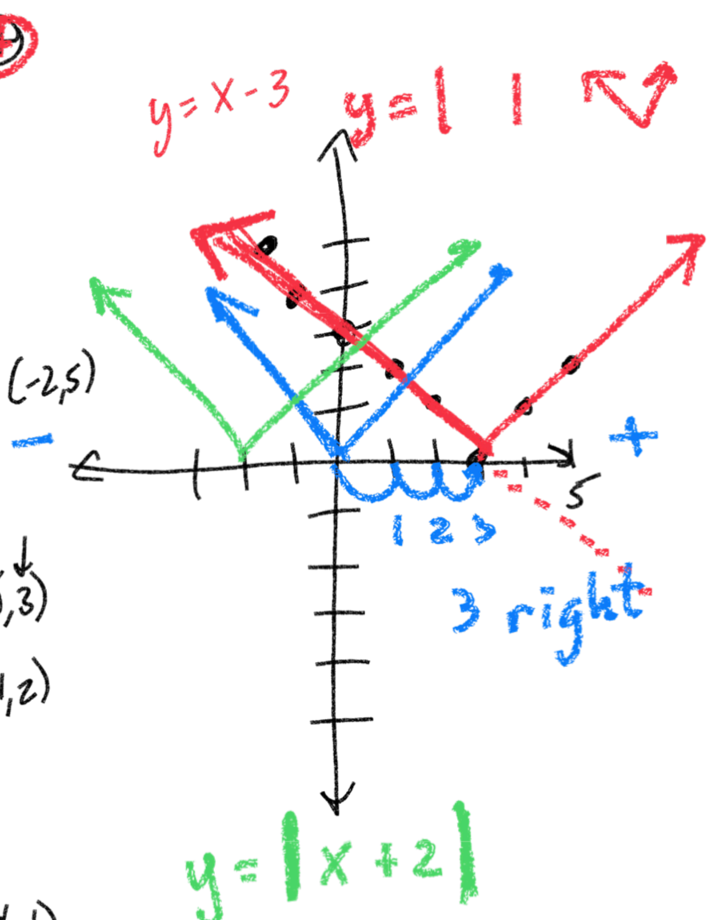
$y = kx$

$$y = \frac{3}{2}x$$

2.5

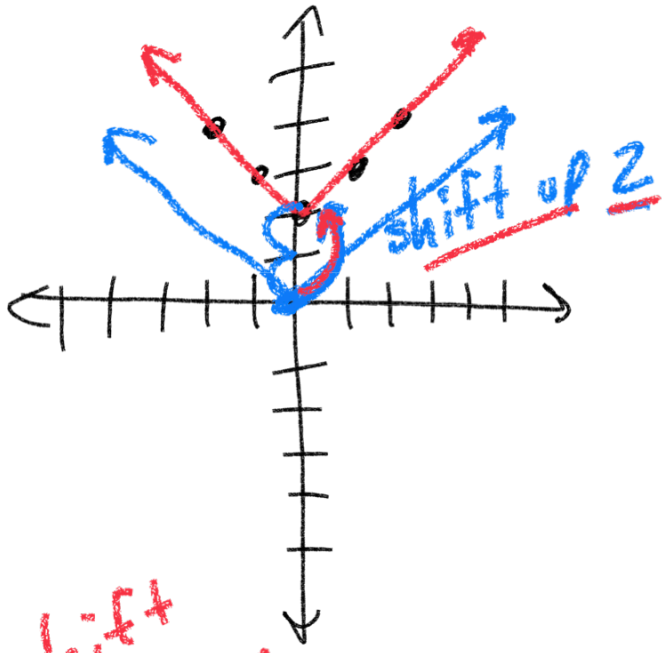
$y = |x - 3|$ (+)

x	$\lvert x - 3 \rvert$	y	
-2	$\lvert -2-3 \rvert = \lvert -5 \rvert$	5	(-2,5)
-1	$\lvert -1-3 \rvert = \lvert -4 \rvert$	4	
0	$\lvert 0-3 \rvert = \lvert -3 \rvert$	3	(0,3)
1	$\lvert 1-3 \rvert = \lvert -2 \rvert$	2	(1,2)
2	$\lvert 2-3 \rvert = \lvert -1 \rvert =$	1	
3	$\lvert 3-3 \rvert = \lvert 0 \rvert$	0	
4	$\lvert 4-3 \rvert = \lvert 1 \rvert$	1	(4,1)
5	$\lvert 5-3 \rvert = \lvert 2 \rvert$	2	(5,2)

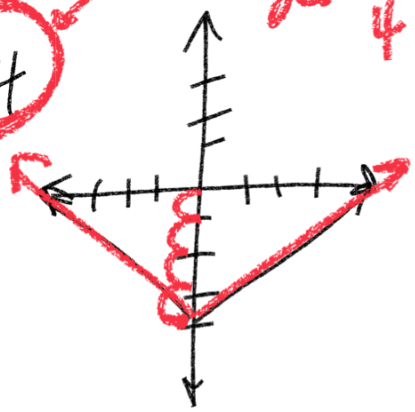


$y = |x| + 2$ ↑ 2

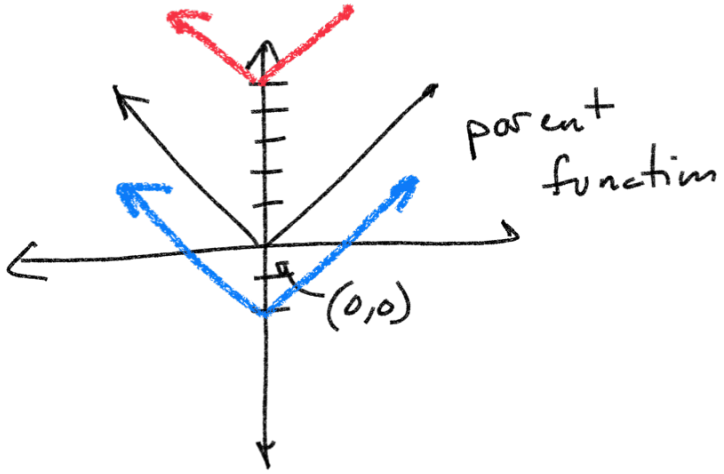
x	$\|x\| + 2$	y
-2	$\|-2\| + 2 = 2 + 2$	4
-1	$\|-1\| + 2 = 1 + 2$	3
0	$\|0\| + 2 = 0 + 2$	2
1	$\|1\| + 2 = 1 + 2$	3
2	$\|2\| + 2 = 2 + 2$	4



$y = |x| - 4$ shift down 4



$y = |x| + 5$ shift up 5



$y = |x| - 2$ shift down 2

$y = |x + 3|$ left 3

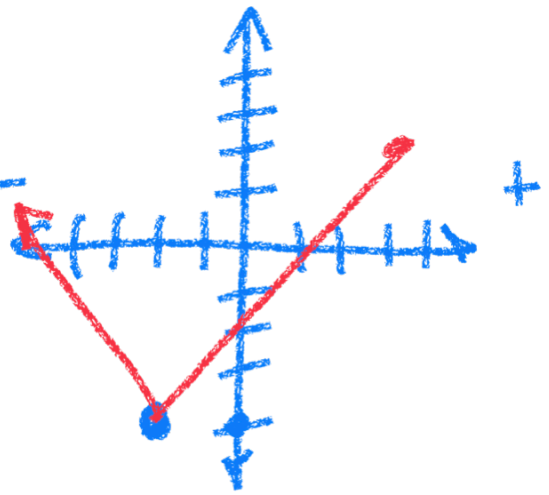
$y = |x - 4|$ right 4

opposite

$y = |x + 2| - 4$

2 left

down 4



$y = |a(x-h)|+k$

TOMG website

Quiz 7 due tonight

HW
2-5 evens
2-6 evens
Supplemental

Quiz 8 due Oct 29th classmarker

Online HW 9 (sat)

Quiz 9 (sat) due Nov 5th