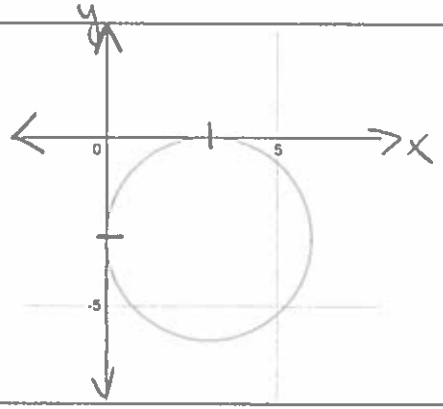
FMPC 10 **Name:**_____ **Date:** KEY

Relations, Functions, Domain, Range and Linear Function (B)
In-Class Assignment

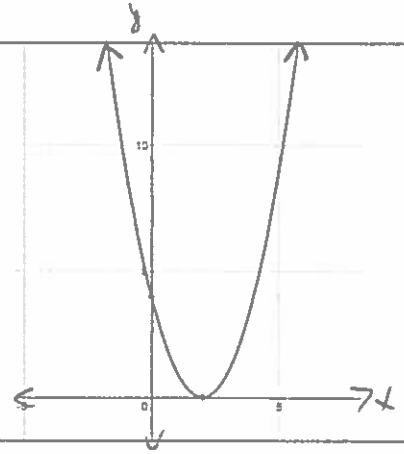
1. Using the set notation, describe the domain and range of each relation. Determine whether the given relation is a function. If the relation has x-intercept(s) and y-intercept(s), give their exact coordinates.

a)



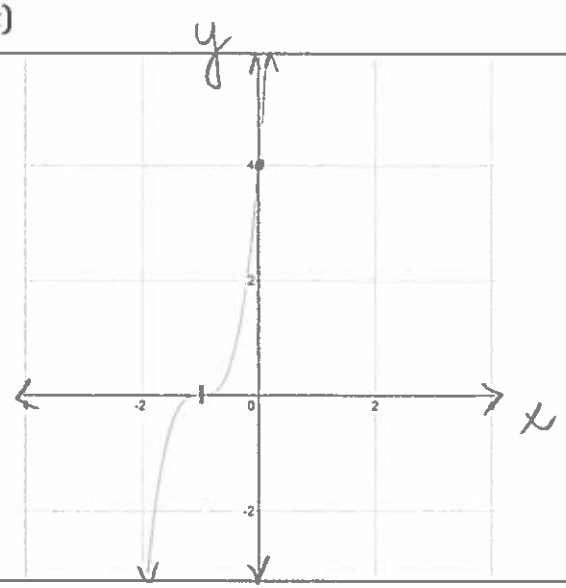
Domain	$\{x \mid 0 \le x \le 6, x \in \mathbb{R}\}$
Range	$\{y \mid -6 \le y \le 0, y \in \mathbb{R}\}$
Is the given relation a function?	not a function
x-intercept(s)	(3,0)
y-intercept(s)	(0,-3)

b)



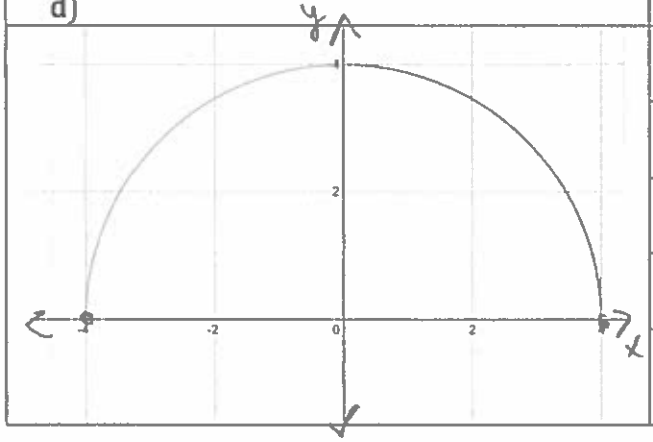
Domain	$\{x \mid x \in \mathbb{R}\}$
Range	$\{y \mid y \ge 0, y \in \mathbb{R}\}$
Is the given relation a function?	yes
x-intercept(s)	(2,0)
y-intercept(s)	(0,4)

c)



Domain	$\{x \mid x \in \mathbb{R}\}$
Range	$\{y \mid y \in \mathbb{R}\}$
Is the given relation a function?	yes
x-intercept(s)	$(-1,0)$
y-intercept(s)	$(0,4)$

d)



Domain	$\{x \mid -4 \leq x \leq 4, x \in \mathbb{R}\}$
Range	$\{y \mid 0 \leq y \leq 4, y \in \mathbb{R}\}$
Is the given relation a function?	yes
x-intercept(s)	$(-4,0)$ and $(4,0)$
y-intercept(s)	$(0,4)$

2. Determine whether the given equation is in:
   - A) slope-intercept form
   - B) general form
   - C) standard form
   - D) slope-point form
   - E) neither

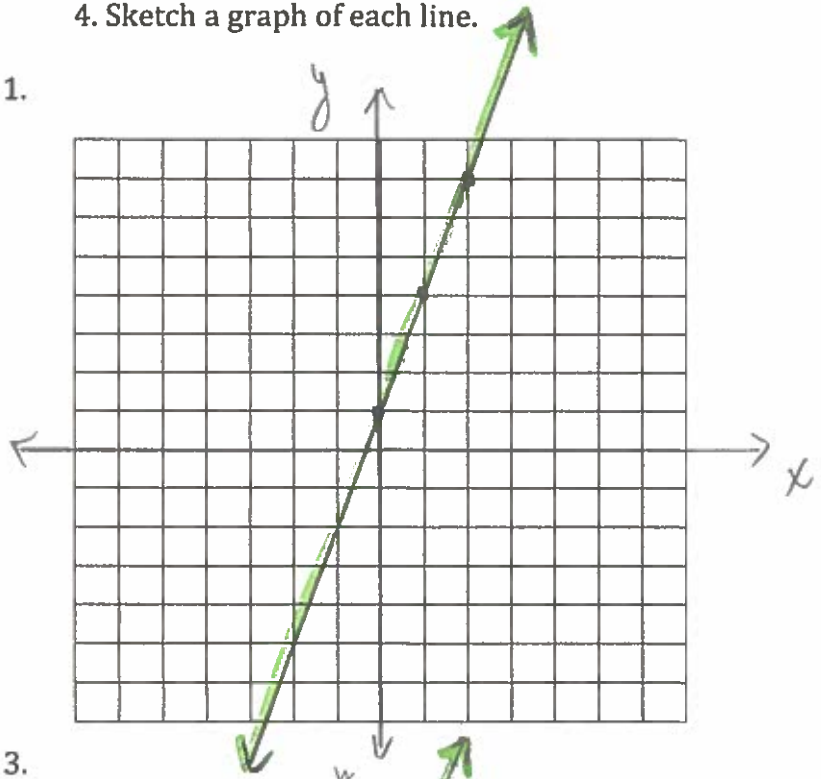
	Equation	Form		Equation	Form
1	$y = 3x + 1$	A	6	$y - 3 = 0.25(x + 8)$	D
2	$-2x + 5y = 10$	E	7	$y + 3x - 6 = 0$	E
3	$5x - y = -8$	C	8	$x + 2 = -4(y - 12)$	E
4	$y = x + 1$	A	9	$y + 10 = -5x$	E
5	$0.5x - 2y - 8 = 0$	E	10	$9x + 4y - 20 = 0$	B

3. Rewrite every equation in question 2 in slope-intercept form if it is not already given in that form. Attach a sheet of paper that shows your algebra.

	Equation	Slope-Intercept Form		Equation	Slop-Intercept Form
1	$y = 3x + 1$	$y = 3x + 1$	6	$y - 3 = 0.25(x + 8)$	$y = \frac{1}{4}x + 5$
2	$-2x + 5y = 10$	$y = \frac{2}{5}x + 2$	7	$y + 3x - 6 = 0$	$y = -3x + 6$
3	$5x - y = -8$	$y = 5x + 8$	8	$x + 2 = -4(y - 12)$	$y = -\frac{1}{4}x + \frac{23}{2}$
4	$y = x + 1$	$y = x + 1$	9	$y + 10 = -5x$	$y = -5x - 10$
5	$0.5x - 2y - 8 = 0$	$y = \frac{1}{4}x - 4$	10	$9x + 4y - 20 = 0$	$y = -\frac{9}{4}x + 5$

4. Sketch a graph of each line.

1.



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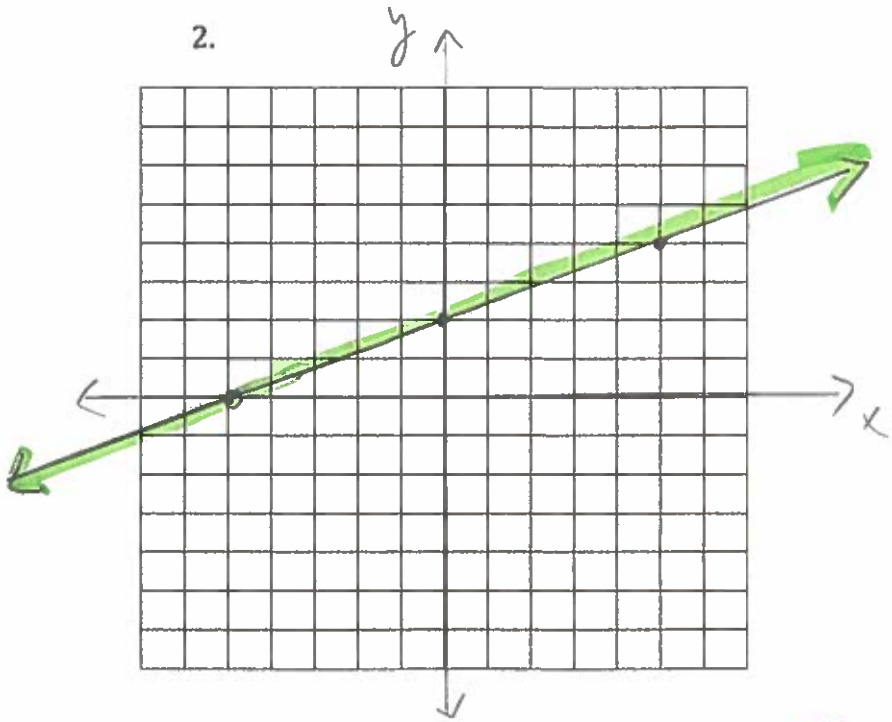

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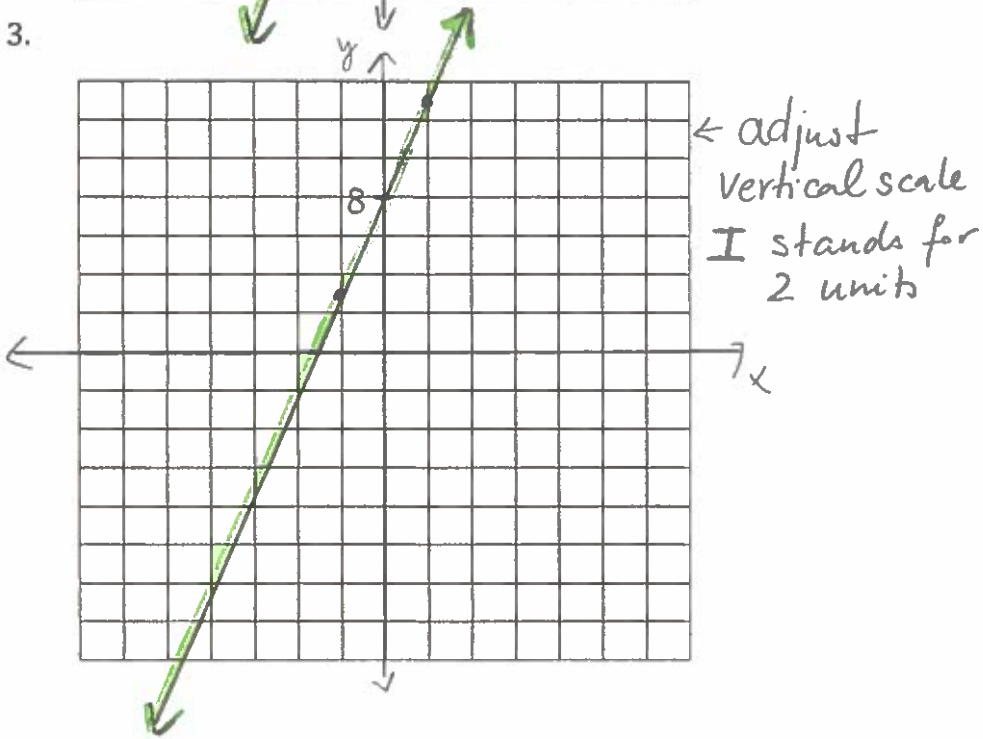

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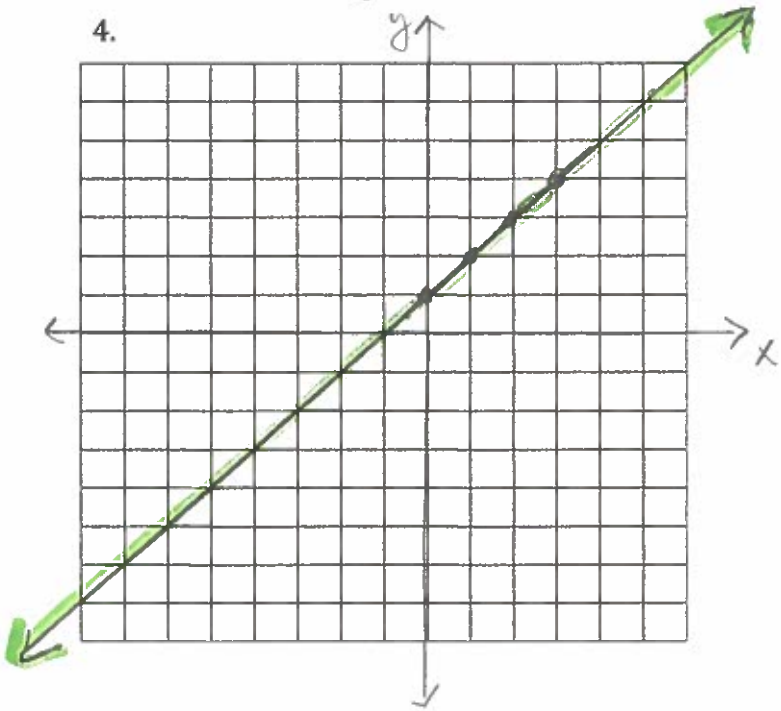

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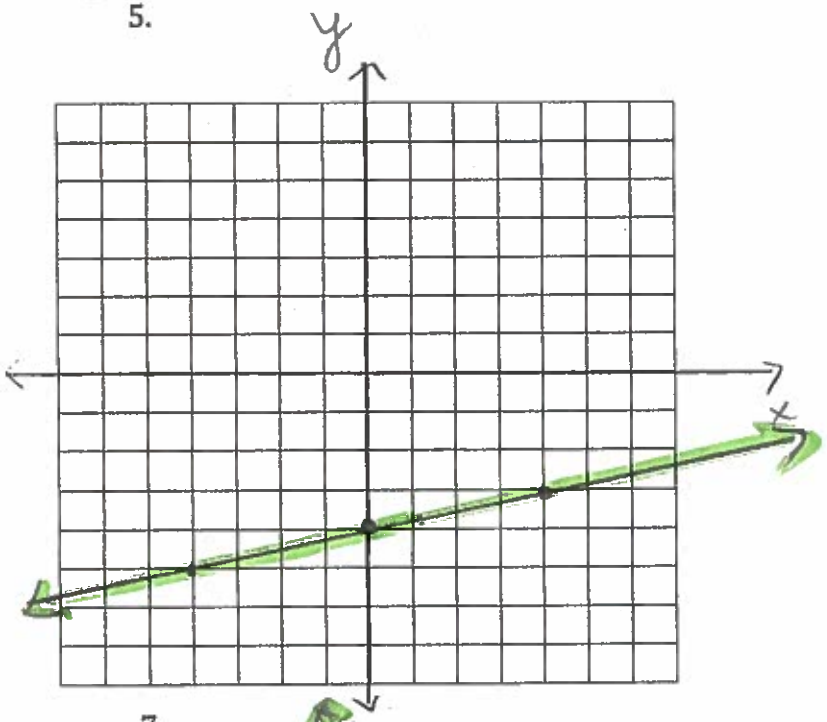

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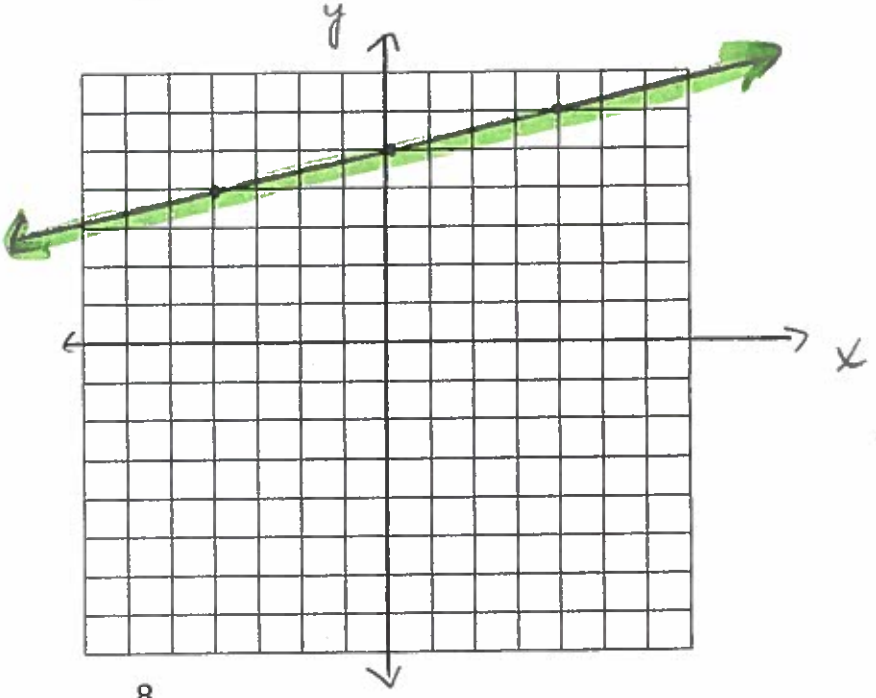

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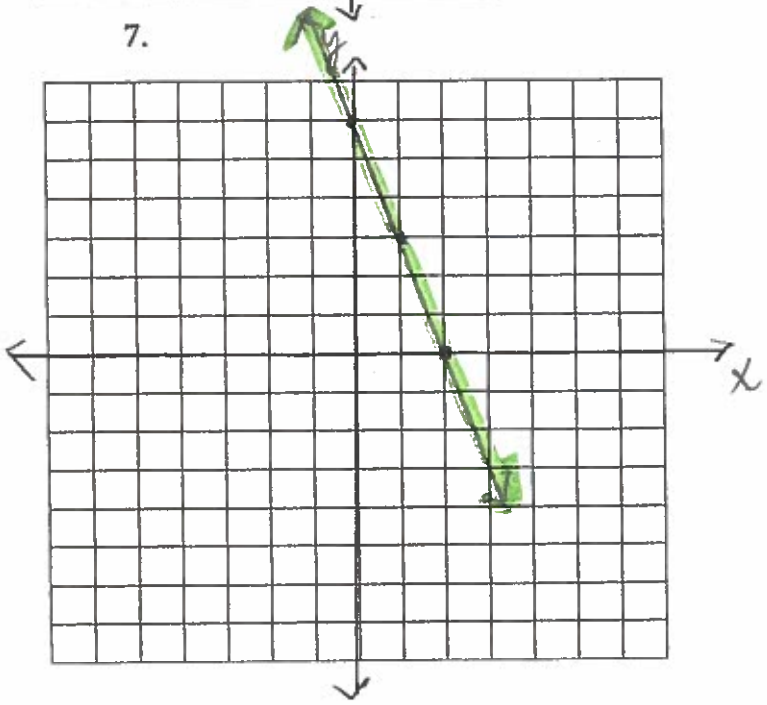

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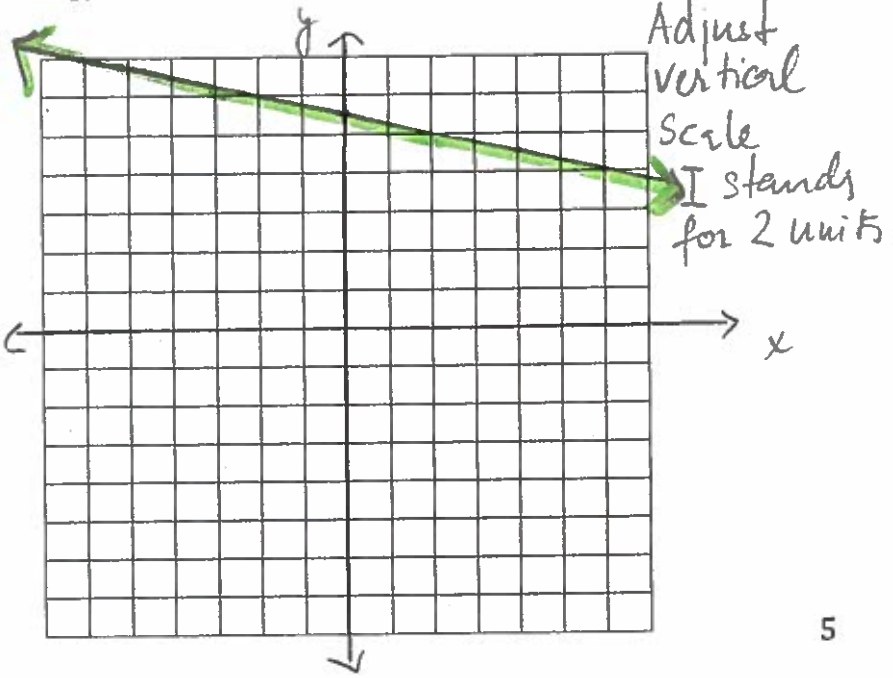

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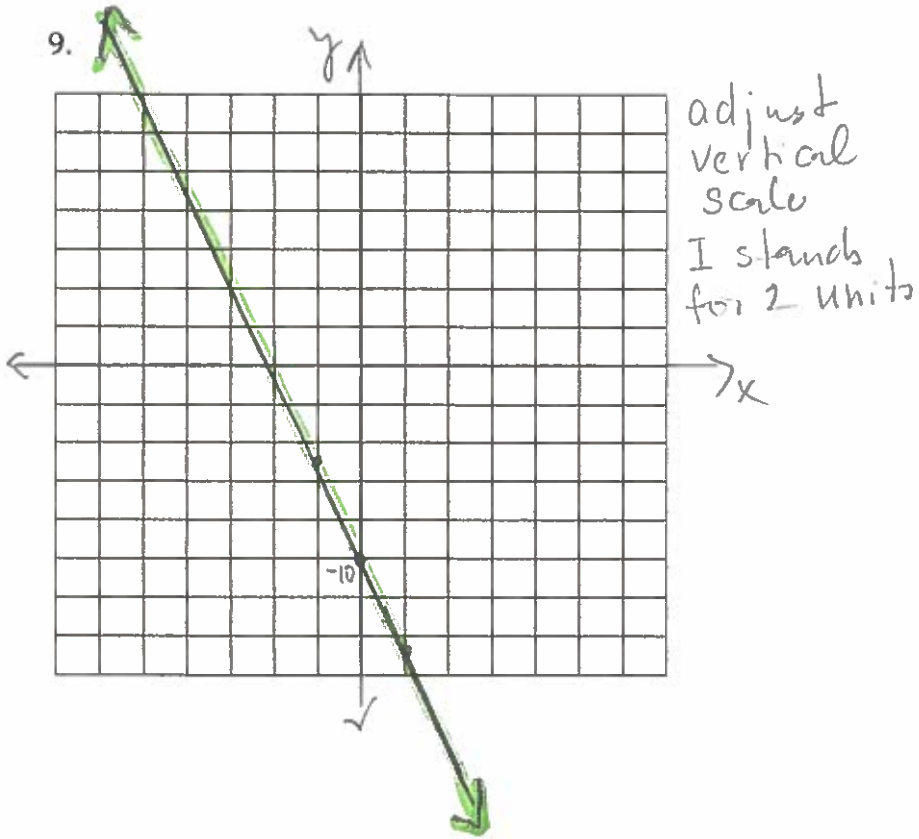
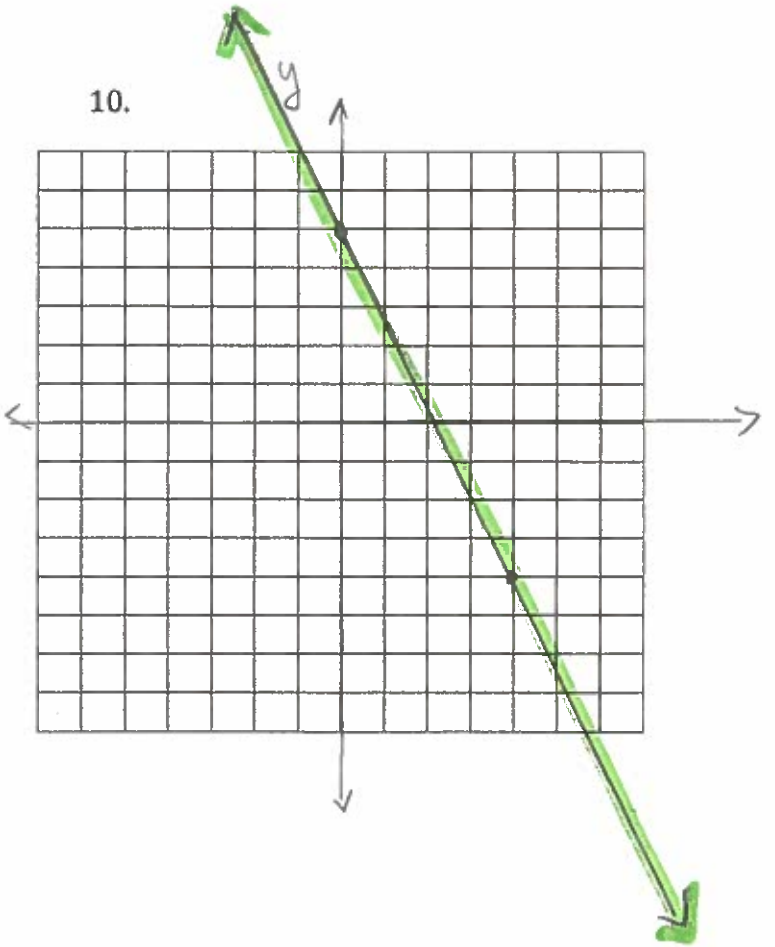


adjust vertical scale
1 stands for 2 units

10.



#2 $-2x + 5y = 10$

$$\frac{5y}{5} = \frac{2x}{5} + \frac{10}{5}$$

$$y = \frac{2}{5}x + 2$$

#3 $5x - y = -8$

$$\frac{-y}{-1} = \frac{-5x}{-1} - \frac{8}{-1}$$

$$y = 5x + 8$$

#5 $0.5x - 2y - 8 = 0$

$$-2y - 8 = -0.5x$$

$$\frac{-2y}{-2} = \frac{-0.5x}{-2} + \frac{8}{-2}$$

$$y = \frac{1}{4}x - 4$$

6 $y - 3 = 0.25(x + 8)$

$$y - 3 = 0.25x + 2$$

$$y = 0.25x + 2 + 3$$

$$y = \frac{1}{4}x + 5$$

#7 $y + 3x - 6 = 0$

$y - 6 = -3x$

$y = -3x + 6$

#8 $x + 2 = -4(y - 12)$

$x + 2 = -4y + 48$

$4y + x + 2 = 48$

$4y + 2 = -x + 48$

$4y = -x + 48 - 2$

$\frac{4y}{4} = \frac{-x}{4} + \frac{46}{4}$

$y = -\frac{1}{4}x + \frac{23}{2}$

#9 $y + 10 = -5x$

$y = -5x - 10$

#10 $9x + 4y - 20 = 0$

$4y - 20 = -9x$

$\frac{4y}{4} = \frac{-9x}{4} + \frac{20}{4}$

$y = -\frac{9}{4}x + 5$