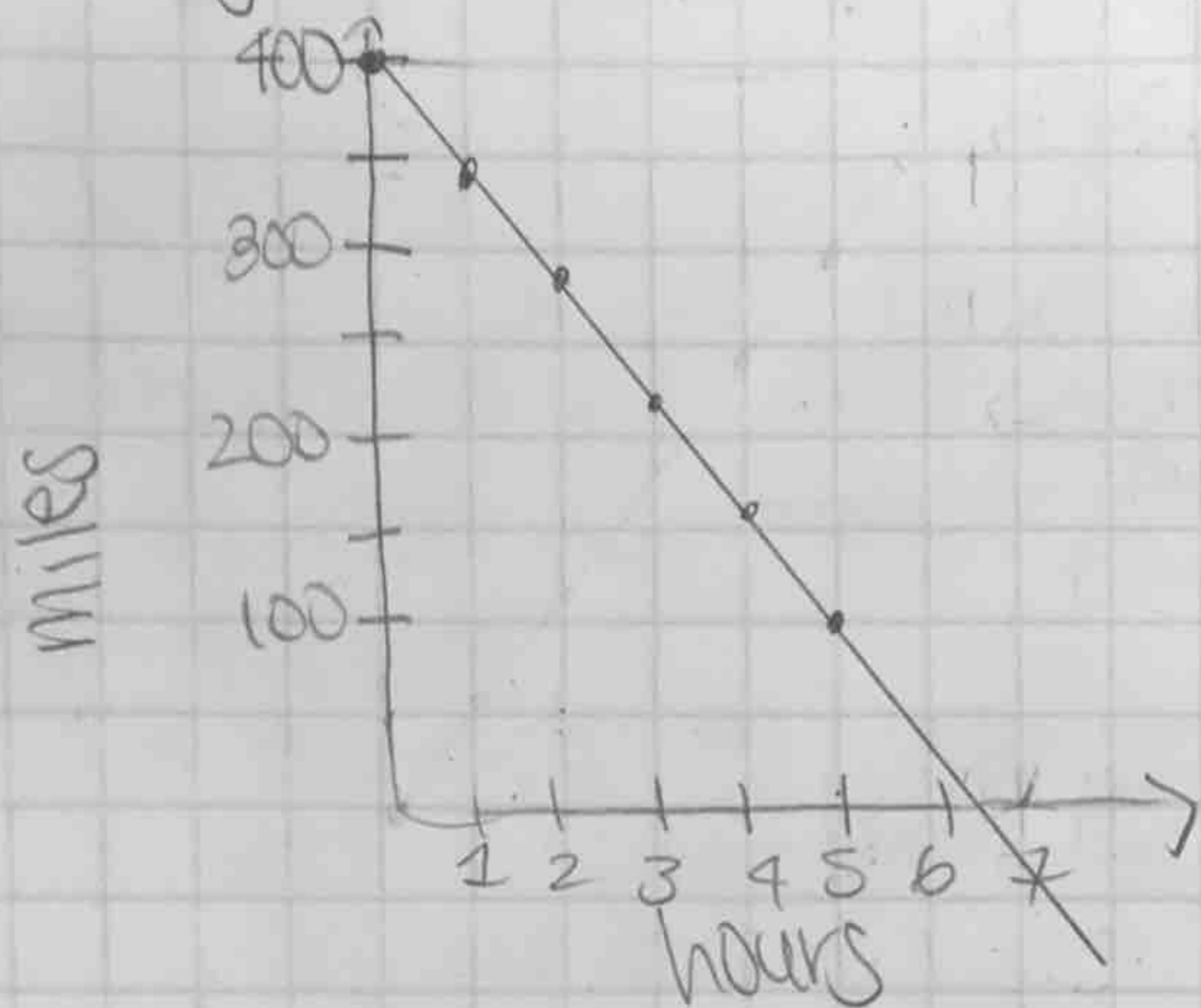


Practice Quiz Answers

1) $y = 400 - 60x$ $x = \text{hours}$ $y = \text{distance from home}$



2) Domain - $[0, 6\frac{2}{3}]$ you are traveling between 0 and $6\frac{2}{3}$ hours to get home.

3) Range - $[0, 400]$ you are anywhere from 0 to 400 miles away from home.

X-Intercept - $y=0 \rightarrow 0 = 400 - 60x$

* Gets home in $6\frac{2}{3}$ hours.

$$\begin{array}{r} 0 = 400 - 60x \\ -400 \quad -400 \\ \hline -400 = -60x \\ \frac{-400}{-60} = \frac{-60x}{-60} \end{array}$$

$$\boxed{6\frac{2}{3} = x}$$

y-Intercept - $x=0 \rightarrow$

* Starts 400 miles away from home.

$$y = 400 - 60(0)$$

$$\boxed{y = 400}$$

3) $y = 400 - 60x$
 $f(x) = 400 - 60x$

$$4) P(t) = \frac{45(1+0.6t)}{(3+0.02t)}$$

$t = \text{months}$
 $P(t) = \text{Population}$

$$a) t=0 \rightarrow P(0) = \frac{45(1+0.6(0))}{(3+0.02(0))}$$

$$\boxed{P(0) = 15} = \frac{45(1)}{(3)} = \frac{45}{3} = 15$$

b) 10 years = 120 months

$$t=120 \rightarrow P(120) = \frac{45(1+0.6(120))}{(3+0.02(120))}$$

$$\boxed{P(120) = 608} = \frac{45(1+72)}{(3+2.4)} = \frac{45(73)}{5.4} = \frac{3285}{5.4} = 608 \frac{1}{3} \approx 608$$

5) (x, y)
 (miles, cost)

$(3, 7.75)$ and $(8, 10)$

$$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{10 - 7.75}{8 - 3} = \frac{2.25}{5} = 0.45$$

$$y = mx + b$$

$$y = 0.45x + b \leftarrow (8, 10)$$

$$10 = 0.45(8) + b$$

$$10 = 3.6 + b$$

$$-3.6 \quad -3.6$$

$$\hline 6.4 = b$$

$$\boxed{y = 0.45x + 6.4}$$

6) Rate of change = slope = 0.45
* Represents \$0.45 per mile

$$y\text{-intercept} = 6.4$$

* Represents the flat fee of \$6.40

7) Rectangle - 2 Parallel lines
2 perpendicular lines

$$y = 3x + 0 \rightarrow y = 3x + 1$$

$$y = -\frac{1}{3}x + 1 \rightarrow y = -\frac{1}{3}x + 5$$

2 lines with slope of 3 } different y-intercepts!
2 lines with slope of $-\frac{1}{3}$

$$8) f(x) = 7x + 45 \rightarrow \begin{array}{r} X = 7y + 45 \\ -45 \quad -45 \\ \hline X - 45 = 7y \\ \hline y = \frac{X - 45}{7} \end{array}$$

$$f^{-1}(x) = \frac{x - 45}{7}$$

This shows given the price, how many people attended the party

$$a) \begin{cases} 3x - 5y = 20 \\ (4x + y = 19) \cdot 5 \end{cases} \rightarrow \begin{array}{r} 3x - 5y = 20 \\ 20x + 5y = 95 \\ \hline \end{array} +$$

$$4x + y = 19$$

$$4(5) + y = 19$$

$$\begin{array}{r} 20 + y = 19 \\ -20 \quad y = -1 \end{array}$$

$$\hline y = -1$$

$$\frac{23x}{23} = \frac{115}{23}$$

$$x = 5$$

$$\boxed{(5, -1)}$$

$$10) \begin{cases} X + y = 30 \\ 20X + 15y = 510 \end{cases}$$

$X = 20$ ton grain bins
 $y = 15$ ton grain bins

$$15X + 15y = 450$$

$$\frac{5X}{5} = \frac{60}{5}$$

$$X = 12$$

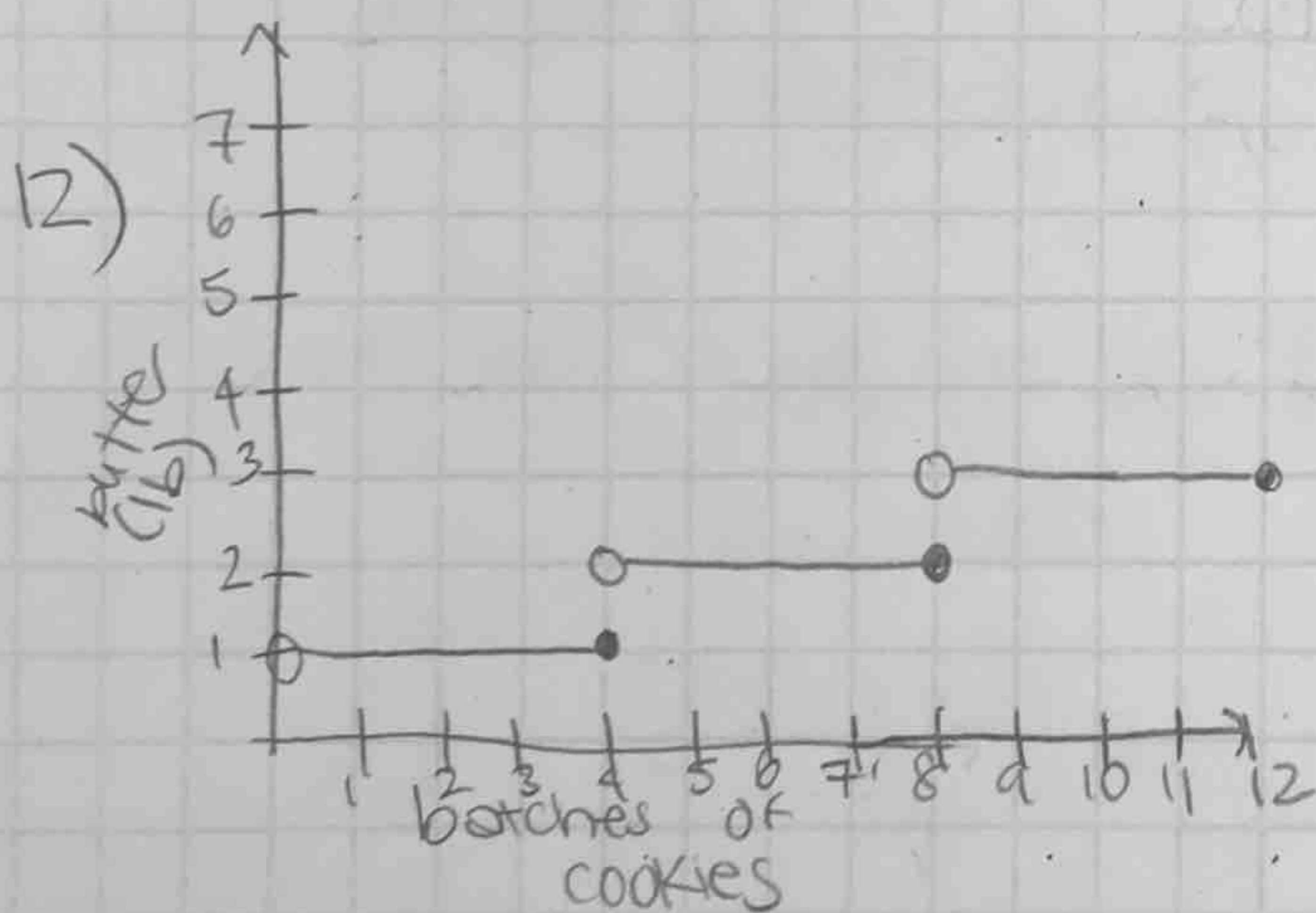
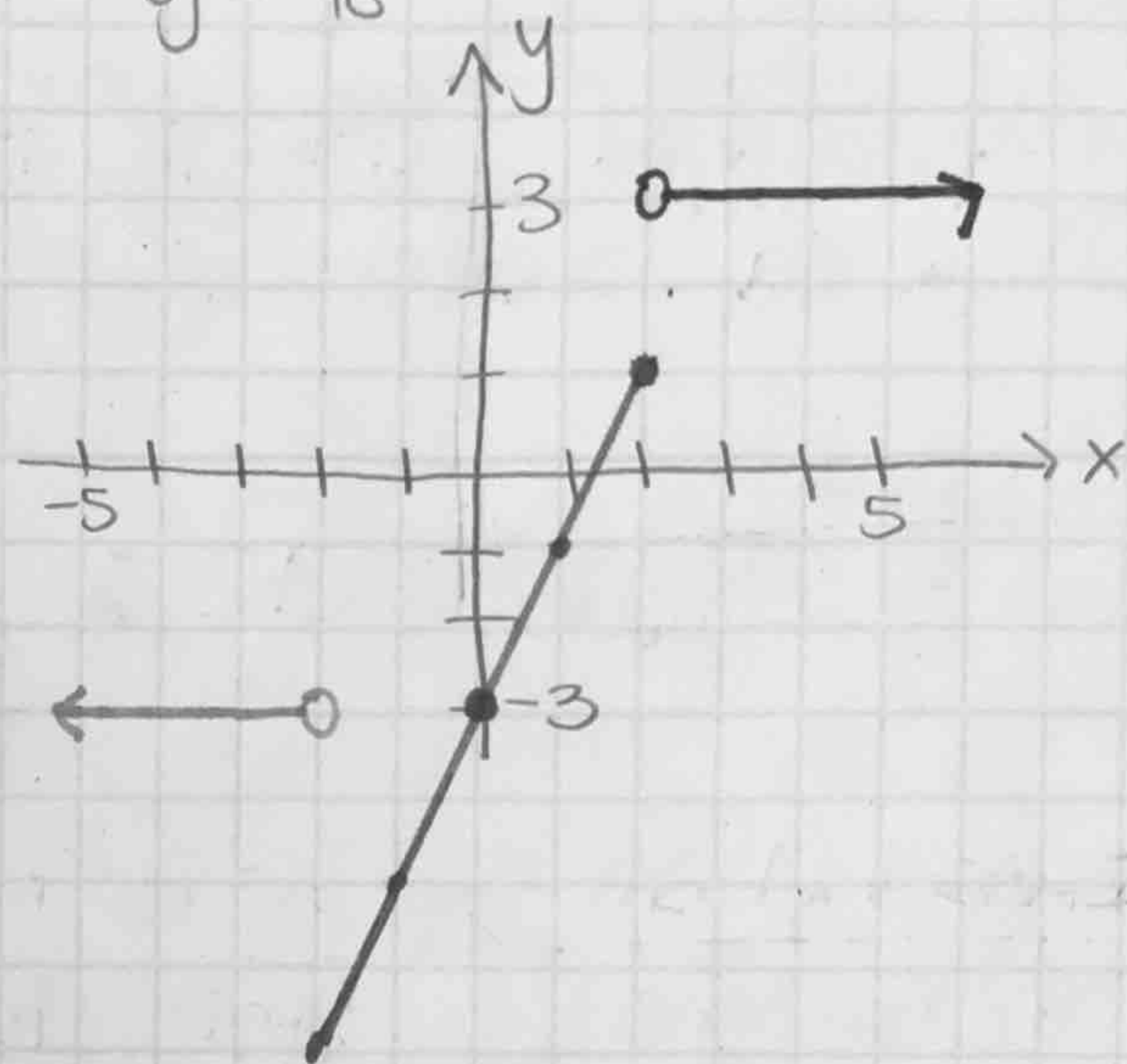
$$X + y = 30$$

$$\begin{array}{r} 12 + y = 30 \\ -12 \quad -12 \\ \hline \end{array}$$

$$y = 18$$

$(12, 18)$

$$11) f(x) = \begin{cases} -3 & \text{if } x < -2 \\ 2x - 3 & \text{if } -2 \leq x \leq 2 \\ 3 & \text{if } x > 2 \end{cases}$$



$$f(x) = \left\lfloor \frac{x}{4} \right\rfloor$$

$$13) a) \begin{array}{r} 2 + 3|2x - 11| = 11 \\ -2 \quad \quad \quad -2 \\ \hline \end{array}$$

$$\frac{3|2x - 11|}{3} = \frac{9}{3}$$

$$|2x - 11| = 3$$

$$\begin{array}{r} 2x - 11 = 3 \\ +11 \quad +11 \\ \hline \end{array}$$

$$\frac{2x}{2} = \frac{14}{2}$$

$$x = 7$$

$$\begin{array}{r} 2x - 11 = -3 \\ +11 \quad +11 \\ \hline \end{array}$$

$$\frac{2x}{2} = \frac{8}{2}$$

$$x = 4$$

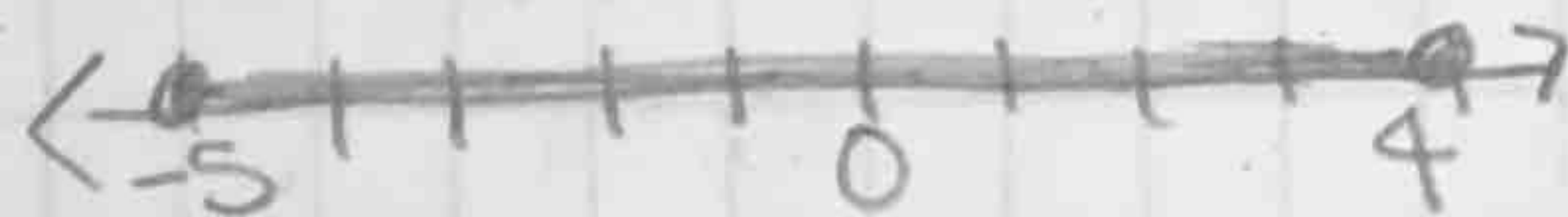
$$b) \begin{array}{r} 7 - |4x + 5| = 15 \\ -7 \quad \quad \quad -7 \\ \hline \end{array}$$

$$-|4x + 5| = 8$$

$$|4x + 5| = -8$$

Impossible to have a negative absolute value!

Practice Test Answers



$$4) a) \frac{-3|x+4|}{-3} > \frac{24}{-3}$$

$$|x+4| < -8$$

Impossible to have a negative absolute value be negative and greater than

$$b) \frac{|2x+1| - 13}{+13} \leq \frac{-4}{+13}$$

$$|2x+1| \leq 9$$

$$2x+1 \leq 9$$

$$\frac{-1}{-1} \quad \frac{-1}{-1}$$

$$\frac{2x \leq 8}{2} \quad \frac{8}{2}$$

$$x \leq 4$$

$$2x+1 \geq -9$$

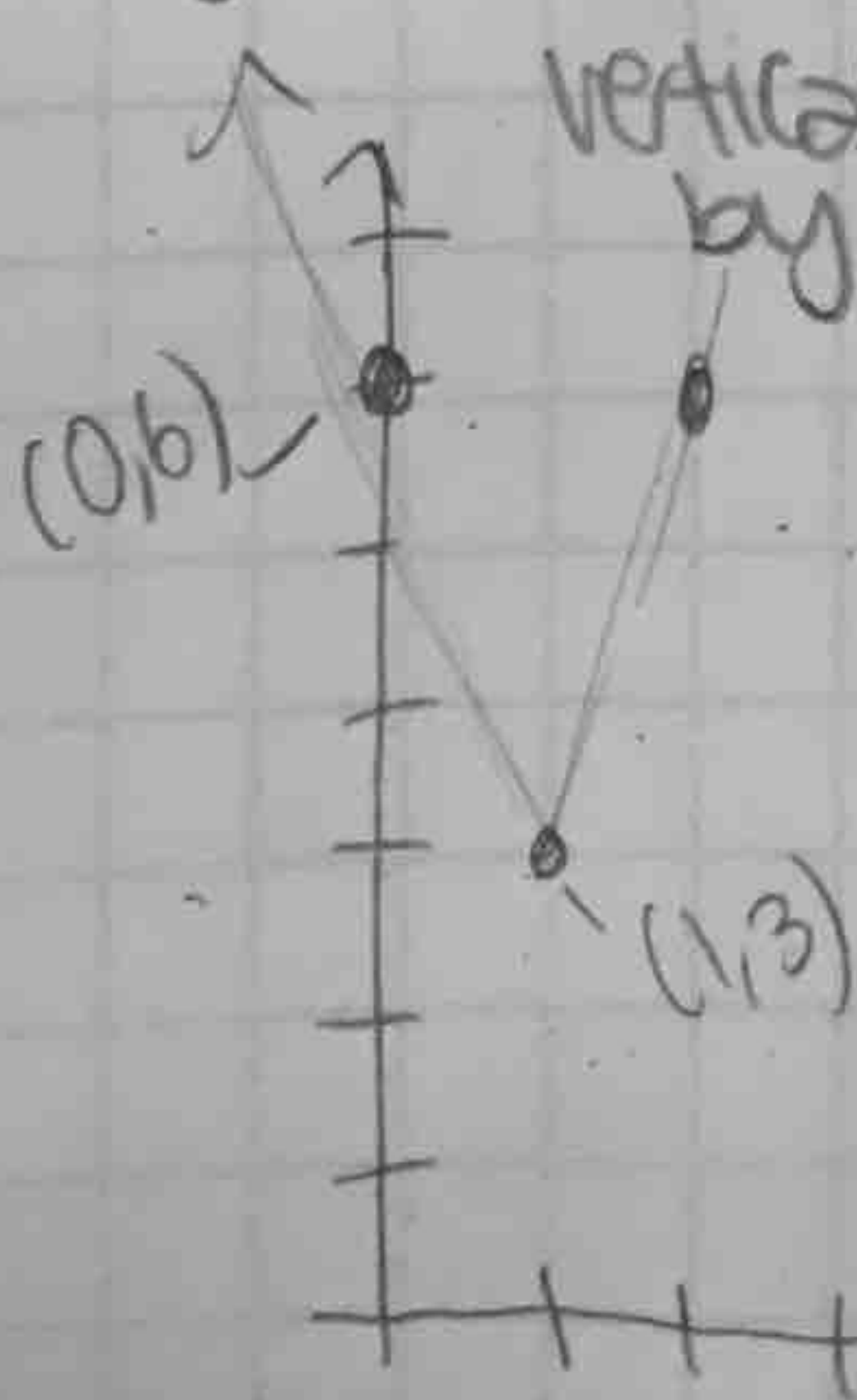
$$\frac{-1}{-1} \quad \frac{-1}{-1}$$

$$\frac{2x \geq -10}{2} \quad \frac{-10}{2}$$

$$x \geq -5$$

$$-5 \leq x \leq 4$$

$$5) a) f(x) = 3|x-1| + 3 \leftarrow \begin{matrix} \uparrow \\ \text{vertical stretch} \\ \text{by } 3 \end{matrix} \begin{matrix} \leftarrow \\ \text{right } 1 \text{ unit} \\ \end{matrix} \leftarrow \begin{matrix} \uparrow \\ \text{3 units up} \end{matrix}$$



$$b) f(x) = \frac{1}{2}|x+4| - 2 \leftarrow \begin{matrix} \uparrow \\ \text{vertical} \\ \text{compression} \\ \text{by } 1/2 \end{matrix} \begin{matrix} \leftarrow \\ \text{left} \\ \text{4 units} \end{matrix} \begin{matrix} \uparrow \\ \text{down} \\ \text{2 units} \end{matrix}$$

