

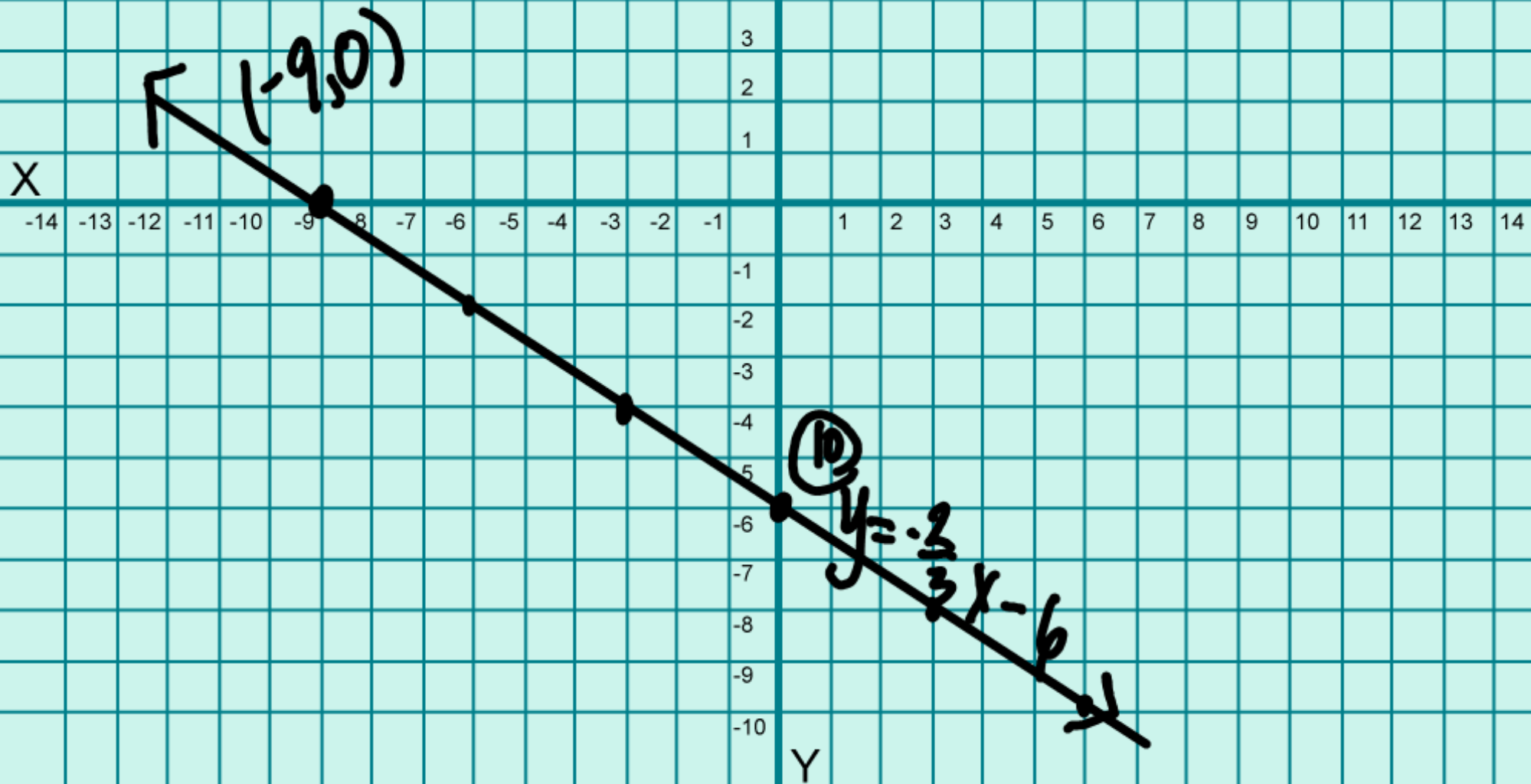
$$5.4 \quad y = mx + b$$

m slope

b y-intercept

(x, y) points on line

$$y = -\frac{2}{3}x - 6$$



$$2x + 4y = 12$$

y-intercept

$$\textcircled{1} y = mx + b$$

$$2x + 4y = 12$$

$$\frac{4y}{4} = \frac{-2x}{4} + \frac{12}{4}$$

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

$$2x + 4y = 12$$

② y-intercept $x=0$

$$2(0) + 4y = 12$$

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

$$y = 3$$

Solve
for y

(0, 3)

$$2x + 4y = 12$$

x-intercept $y=0$

$$2x + 4(0) = 12$$

$$\frac{2x}{2} = \frac{12}{2}$$

$$x = 6$$

(6, 0)

$$2x + 4y = 12$$

$$m = -\frac{1}{2}$$

y-intercept
 $(0, 3)$ $x=0$

X

-14 -13 -12 -11 -10 -9 -8 -7 -6 -5 -4 -3 -2 -1 1 2 3 4 5 6 7 8 9 10 11 12 13 14

x-intercept
 $(6, 0)$ $y=0$

10
9
8
7
6
5
4
3
2
1
-1
-2
-3
-4
-5
-6
-7
-8
-9
-10

Y

$$2x + 4y = 12$$

Standard Form

$$Ax + By = C$$

$$2x + 4y = 12$$

$$m = -\frac{A}{B}$$

$$m = -\frac{2}{4}$$

$$m = -\frac{1}{2}$$

$$4y = -2x + 12$$

$$y = -\frac{2}{4}x + 3$$

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

$$0 = -\frac{1}{2}x + 3$$

$$-3 = -\frac{1}{2}x$$

$$6 = x$$

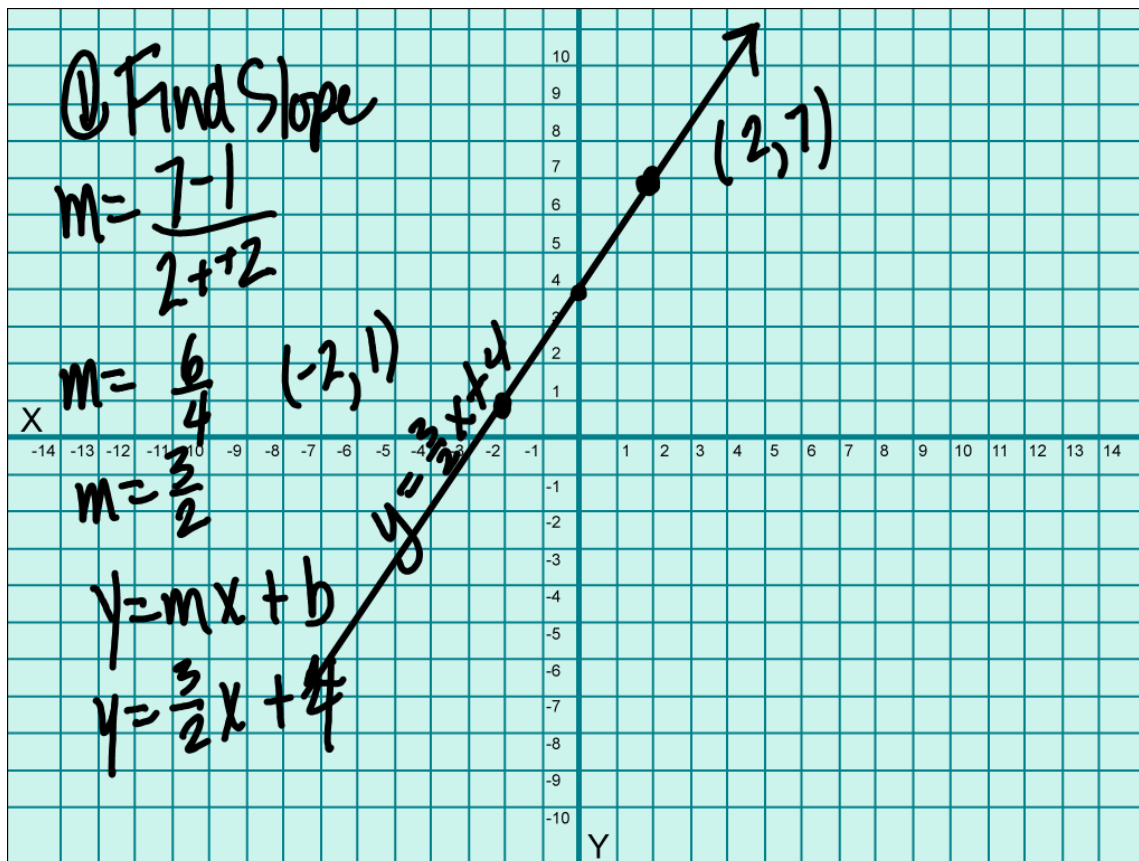
$$Ax + By = C$$

$$3x - 6y = 18$$

$$m = -\frac{A}{B}$$

$$m = -\frac{3}{-6}$$

$$m = \frac{1}{2}$$



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

$$7 = \frac{3}{2}(2) + b$$

$$7 = 3 + b$$

$$4 = b$$

$$(-2, 1) \quad (2, 7)$$

Choose 1 point

$$y = \frac{3}{2}x + 4$$

$$(7, 2) \quad (-4, -2)$$

① Find Slope

$$m = \frac{y_2 - y_1}{x_2 - x_1} \quad m = \frac{2 - (-2)}{7 - (-4)}$$

$$m = \frac{4}{11}$$

② Choose 1 point (7, 2)

$$y = mx + b$$

$$2 = \frac{4}{11}(7) + b$$

$$2 = \frac{28}{11} + b$$

~~$\frac{22}{11}$~~

$$\frac{-22}{11} \quad \frac{-22}{11}$$

$$\frac{-6}{11} = b$$

$$y = \frac{4}{11}x - \frac{6}{11}$$

$(4, 3)$ $(0, 7)$ $x=0$ y -intercept

$$(4, 3) \quad (4, -1)$$

$$m = \frac{3 - (-1)}{4 - 4}$$

$$x = 4$$

$$m = \frac{4}{0} \quad \text{undefined}$$

Vertical

$$(9, 3) \quad (9, 2)$$

$$x = 9$$

$$(4, 7) \quad (-1, 7)$$

$$y = 7$$

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