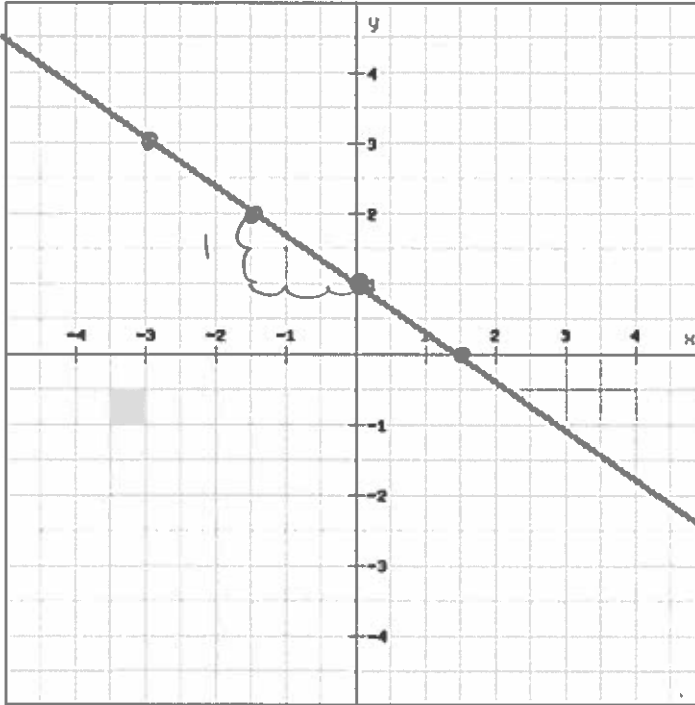


7.1 Slope-intercept form

Extra Examples

1. What is the slope-intercept equation of the line?



Steps

1) Find slope

2) Find y-intercept

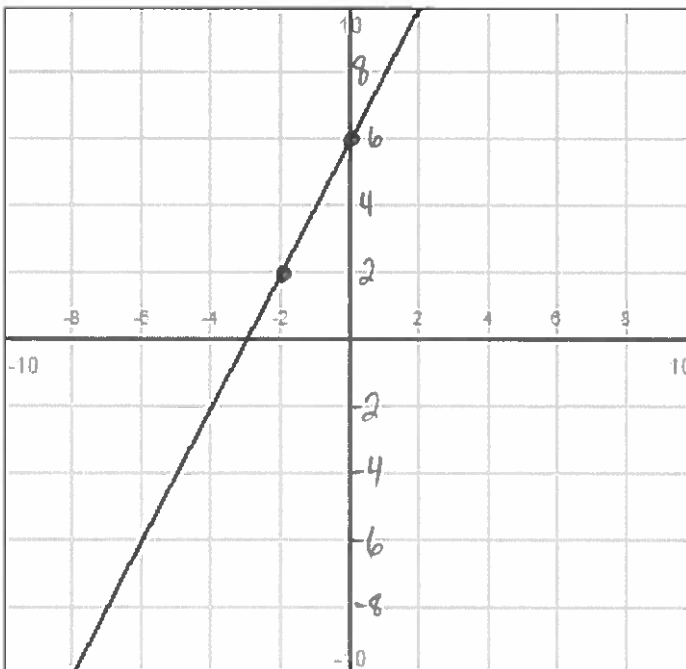
3) Write the equation

$$1) m = \frac{\text{rise}}{\text{run}} = \frac{-1}{1.5} = \frac{-10}{15} = -\frac{2}{3}$$

$$2) y\text{-intercept} = 1$$

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

2. What is the slope-intercept equation of the line?



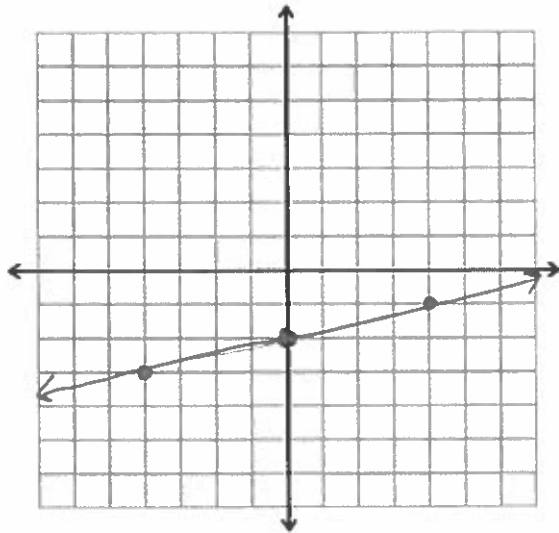
$$1) m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{6 - 2}{0 - (-2)} = \frac{4}{2} = 2$$

$$2) y\text{-intercept} = 6$$

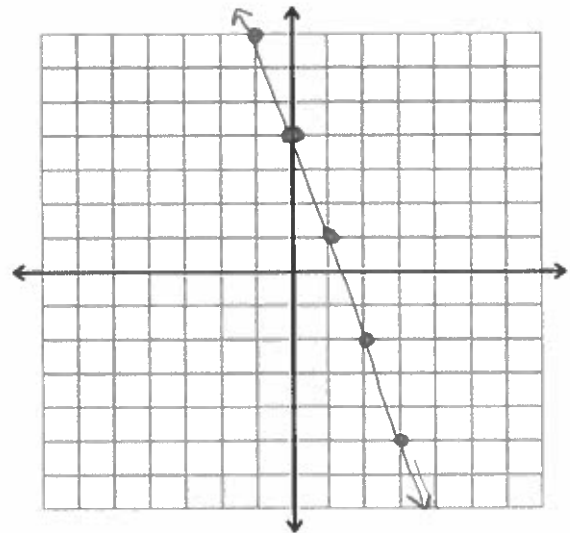
$$3) y = 2x + 6$$

3. Graph the following equations by hand,

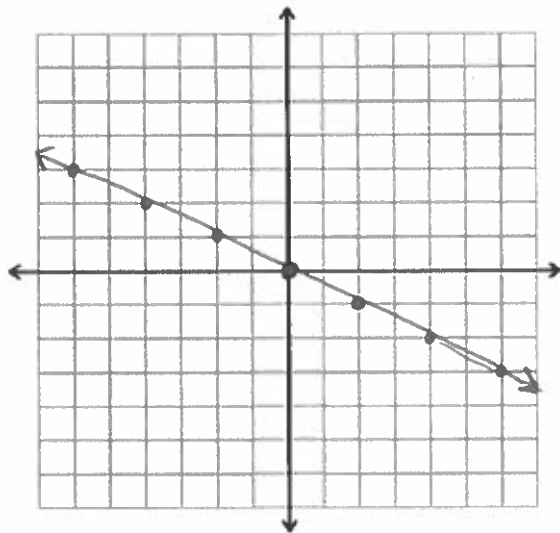
a) $y = (1/4)x - 2$



b) $y = -3x + 4$



c) $y = -(1/2)x$



4. Rewrite the following equations into slope-intercept form.

a) $6 + y - 5x = 0$
 $\quad -b \quad +5x \quad -b \quad +5x$

$y = 5x - 6$

b) $2y + 7x - 12 = 0$
 $\quad -7x \quad +12$

$\frac{2y}{2} = -\frac{7x}{2} + \frac{12}{2}$

$y = -\frac{7}{2}x + 6$

c) $-y + \frac{1}{4}x = 0$
 $\quad -(\frac{1}{4}x)$

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

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

CR

$-y + \frac{1}{4}x = 0$
 $+y \quad +y$

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

5. a) Find an equation of the line that have the two points (0, 4) and (-3, 2). Write it in slope-intercept form.

1) slope $m = \frac{y_2 - y_1}{x_2 - x_1}$

$$m = \frac{2 - 4}{-3 - 0} = \frac{-2}{-3} = \frac{2}{3}$$

2) y-intercept: 4

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

b) Find an equation of the line that have the two points (-4, 2) and (-3, 5). Write it in slope-intercept form.

1) Slope: $m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{5 - 2}{-3 - (-4)} = \frac{3}{1} = 3$

2) y-intercept: my slope is $\frac{3}{1} = \frac{\text{rise}}{\text{run}}$, thus the y value increases by 3 and x value increases by 1 each with each coordinate.

(goal: (0, y))

$$(-3, 5) \rightarrow (-3 + 1, 5 + 3) \rightarrow (-2, 8)$$

$$(-2, 8) \rightarrow (-2 + 1, 8 + 3) \rightarrow (-1, 11)$$

$$(-1, 11) \rightarrow (-1 + 1, 11 + 3) \rightarrow (0, 14)$$

$$y = 3x + 14$$

