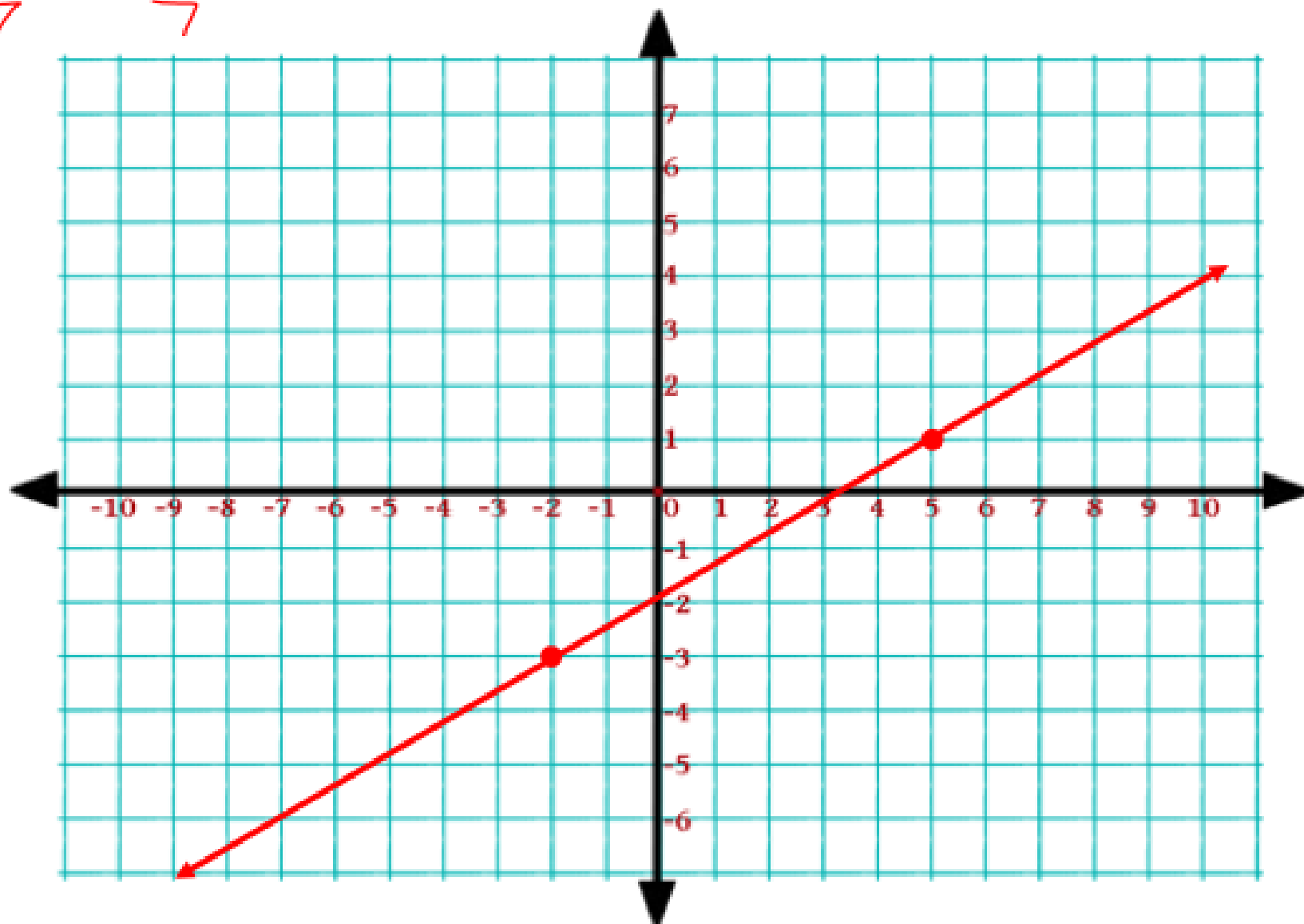


Bell Ringer - Write the equation of the line in slope-intercept form.

$$y = \frac{4}{7}x - \frac{13}{7}$$



Writing Linear Equations in Point-Slope Form

Point-Slope Form $y - y_1 = m (x - x_1)$

$$\text{Slope (m)} = \frac{y_1 - y_2}{x_1 - x_2}$$

x_1 = x-coordinate of a point on the line

y_1 = y-coordinate of a point on the line

Given 2 points, write the equation of the line in point-slope form.

Steps:

- calculate the slope
- choose a point to use for x_1 and y_1
- write the equation

1. $(-9, 10)$ and $(-4, -3)$ $y - y_1 = m(x - x_1)$

$$m = \frac{10 - (-3)}{-9 - (-4)} = \frac{13}{-5} = -\frac{13}{5}$$

$$y - 10 = -\frac{13}{5}(x + 9)$$

$$y + 3 = -\frac{13}{5}(x + 4)$$

2. (4 , -5) and (-2 , -7)

$$m = \frac{-5 - (-7)}{4 - (-2)} = \frac{2}{6} = \frac{1}{3}$$

$$y + 5 = \frac{1}{3}(x - 4)$$

$$y + 7 = \frac{1}{3}(x + 2)$$

Write in point-slope form, then in slope-intercept form.

3. $(1, 4); m = 2$

$$y - 4 = 2(x - 1) \quad \text{point-slope form}$$

$$y - 4 = 2x - 2$$

$+4 \qquad \qquad +4$

$$y = 2x + 2 \quad \text{slope-intercept form}$$

Write in point-slope form, then in slope-intercept form.

4. $(4, -2); m = 1/4$

$$y + 2 = \frac{1}{4}(x - 4) \quad \text{point-slope form}$$

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

$-2 \qquad \qquad -2$

$$y = \frac{1}{4}x - 3 \quad \text{slope-intercept form}$$