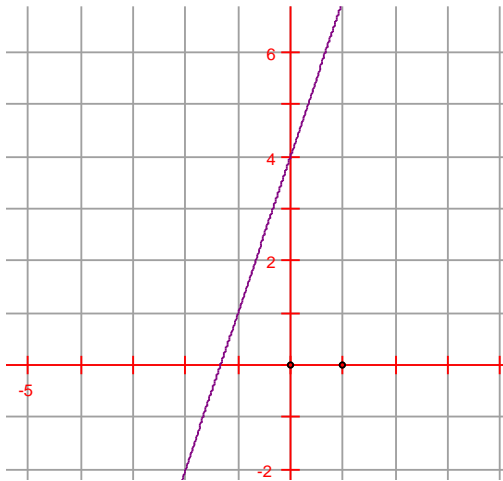


Lesson 2: Knowing the Significance of $y = mx + b$

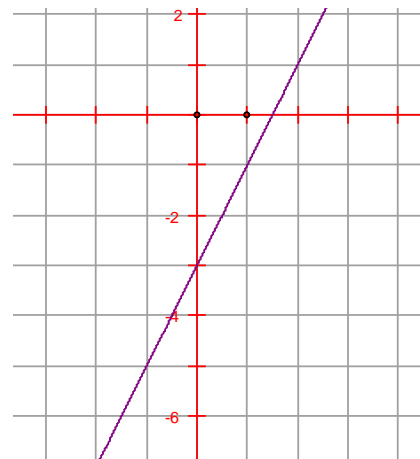
Warm Up:

1. Identify the y-intercept (b) in each case:

a)



b)



Finding Slope

Four other ways to think of m , besides “slope”:

1) $\frac{\text{rise}}{\text{run}}$

2) $\frac{\text{difference in } y\text{-coordinates}}{\text{difference in } x\text{-coordinates}}$

3) $\frac{\Delta y}{\Delta x}$

4) $\frac{y_2 - y_1}{x_2 - x_1}$

Using Slope to Sketch Graphs

rise Rise is the vertical distance

run Run is the horizontal distance

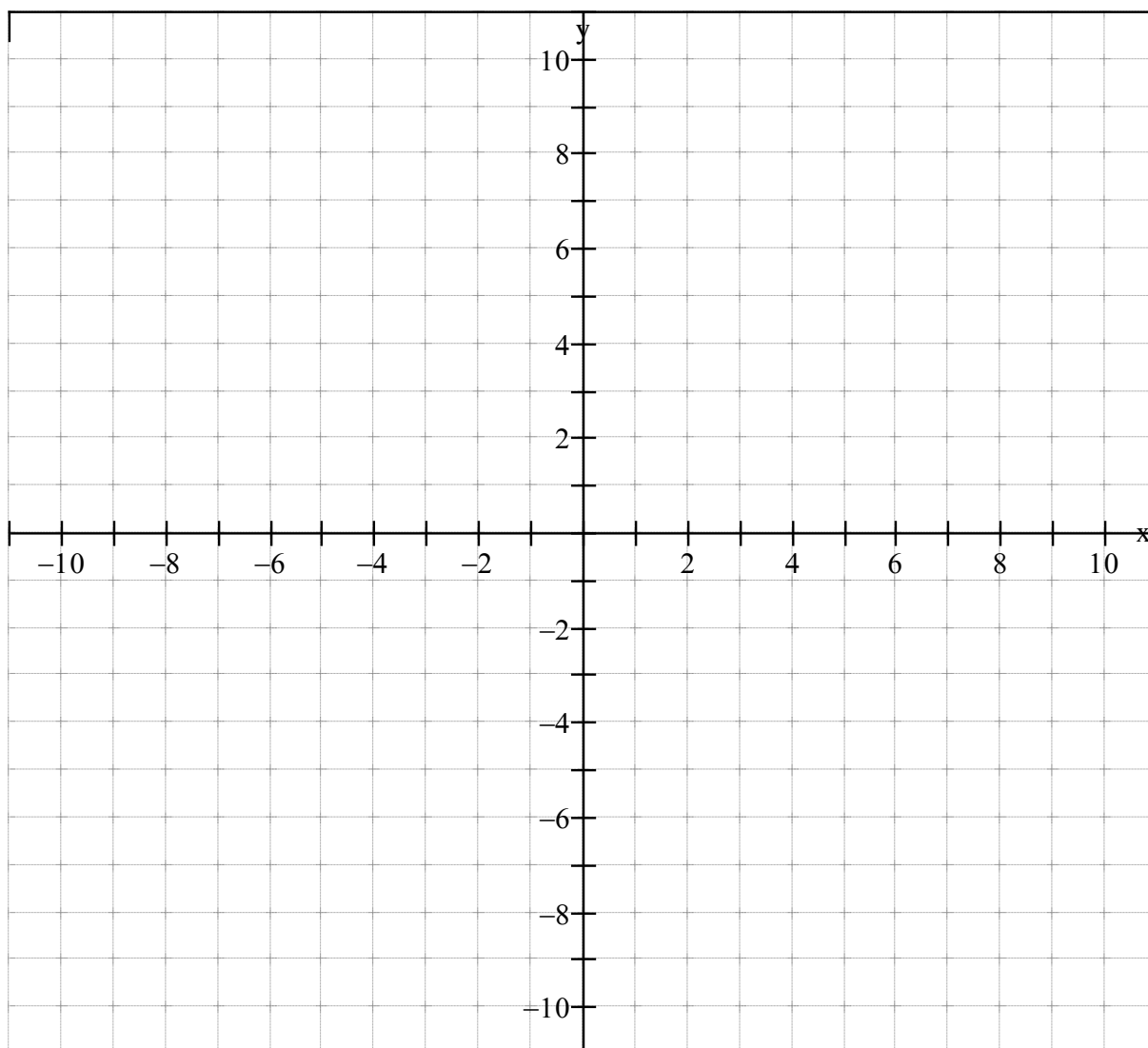
Sketch lines with the following slopes that have a **y-intercept of 0**:

1) 4

2) $\frac{1}{2}$

3) -2

4) $\frac{-3}{4} = \frac{3}{-4}$



Determining Slope Given Two Points

If we know the coordinates of two points on a line, we can determine the slope of a line between them.

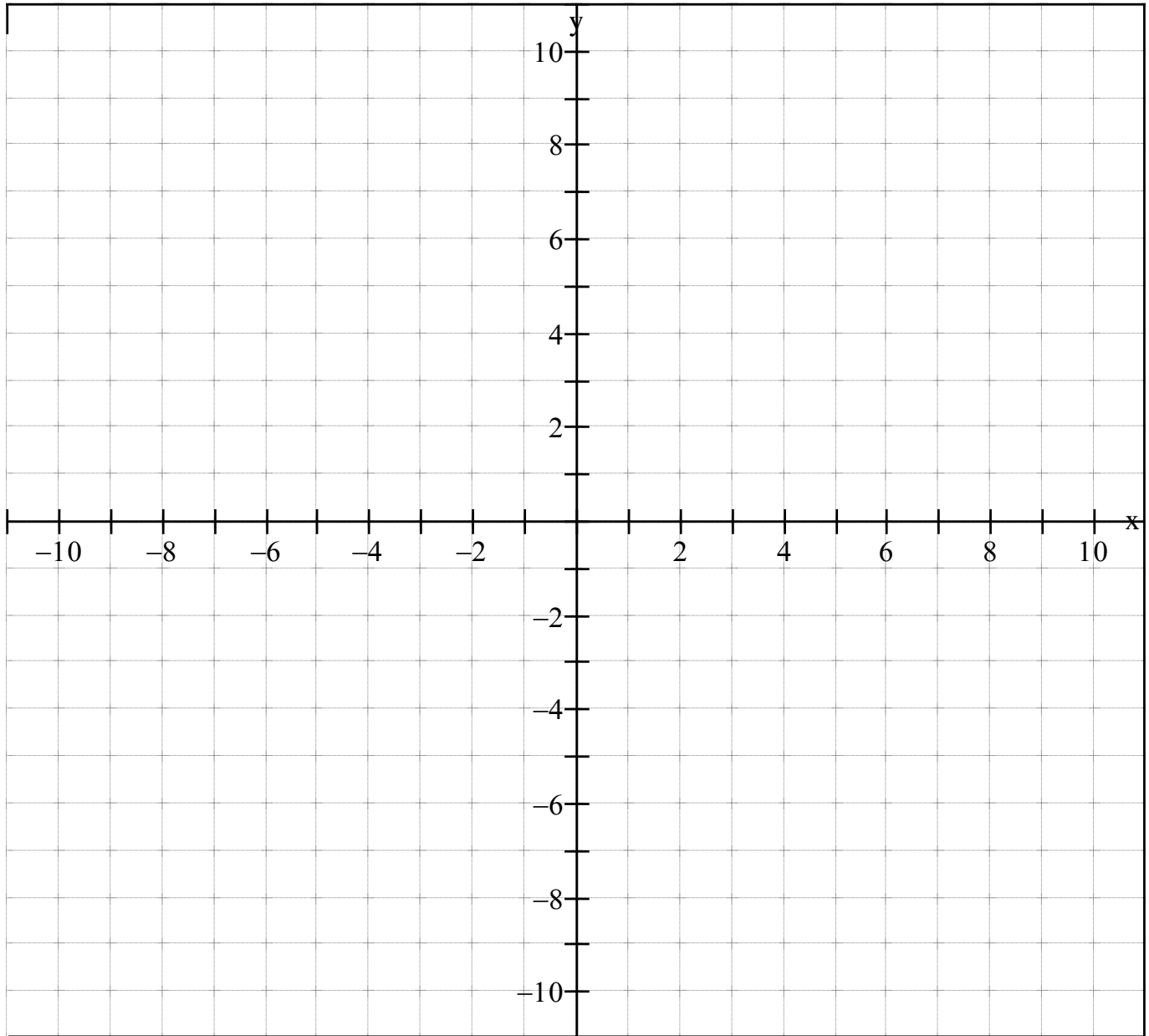
$$\frac{\text{difference in } y\text{-coordinates}}{\text{difference in } x\text{-coordinates}} \qquad \frac{\Delta y}{\Delta x} \qquad \frac{y_2 - y_1}{x_2 - x_1}$$

Example 1) Find the slope for the following two points: (3, 6) and (6, 15)

Example 2) Find the slope for the following two points: (-6, 4) and (-2, 6)

Example 3) Find the slope for the following two points: (4, 12) and (6, 8)

Graph examples 1-3 on the following graph. Assume y- intercept is _____.



Challenge:

1. Calculate the slope of the line between the y-intercept of -5 and the point (2, 1)

2. Calculate the slope of the line between the x-intercept of 4 and the point (1, 3).

Homework: p 133 #1-3, 5, 6