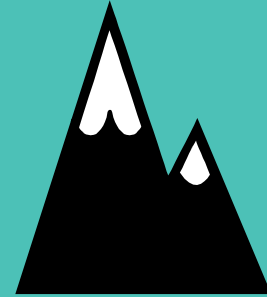**4.2**
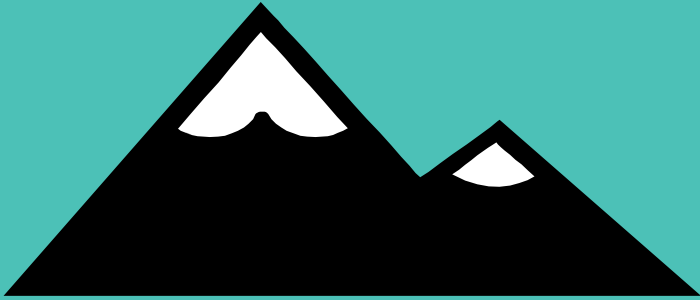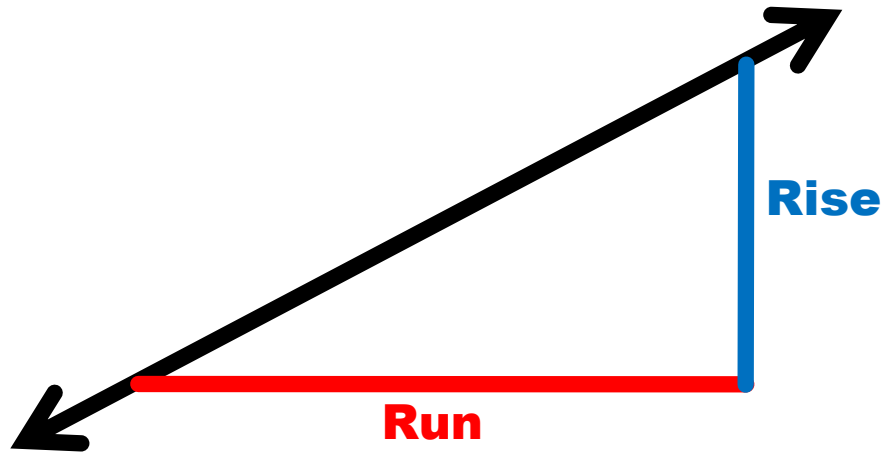
Slope of a Line

SLOPE
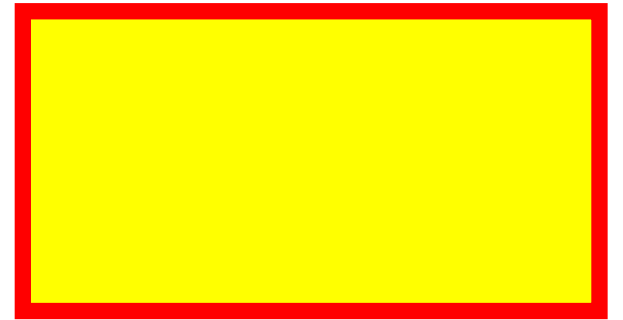
This is the measure of steepness

SLOPE OF A LINE
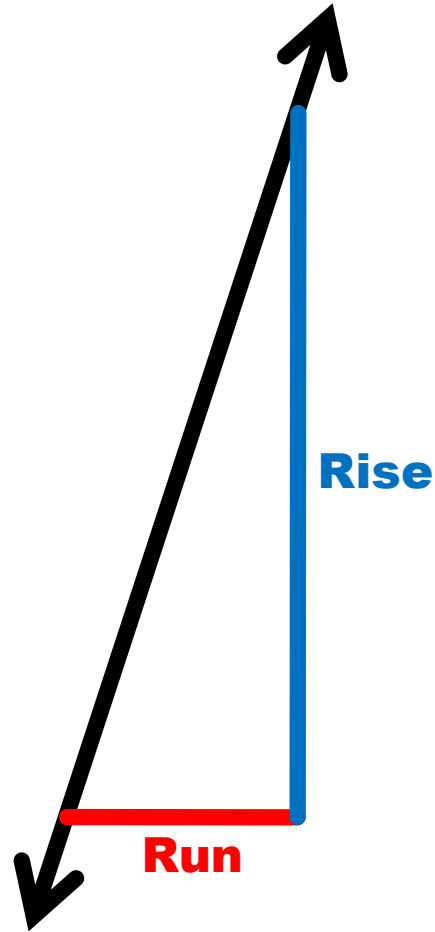
Rise

Run

SLOPE OF A LINE

Rise

Run

SLOPE OF A LINE

Rise

Run

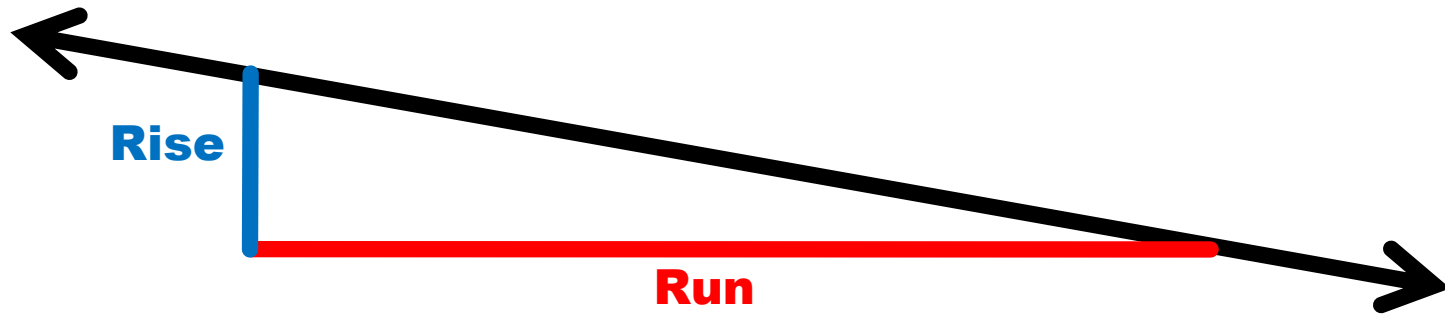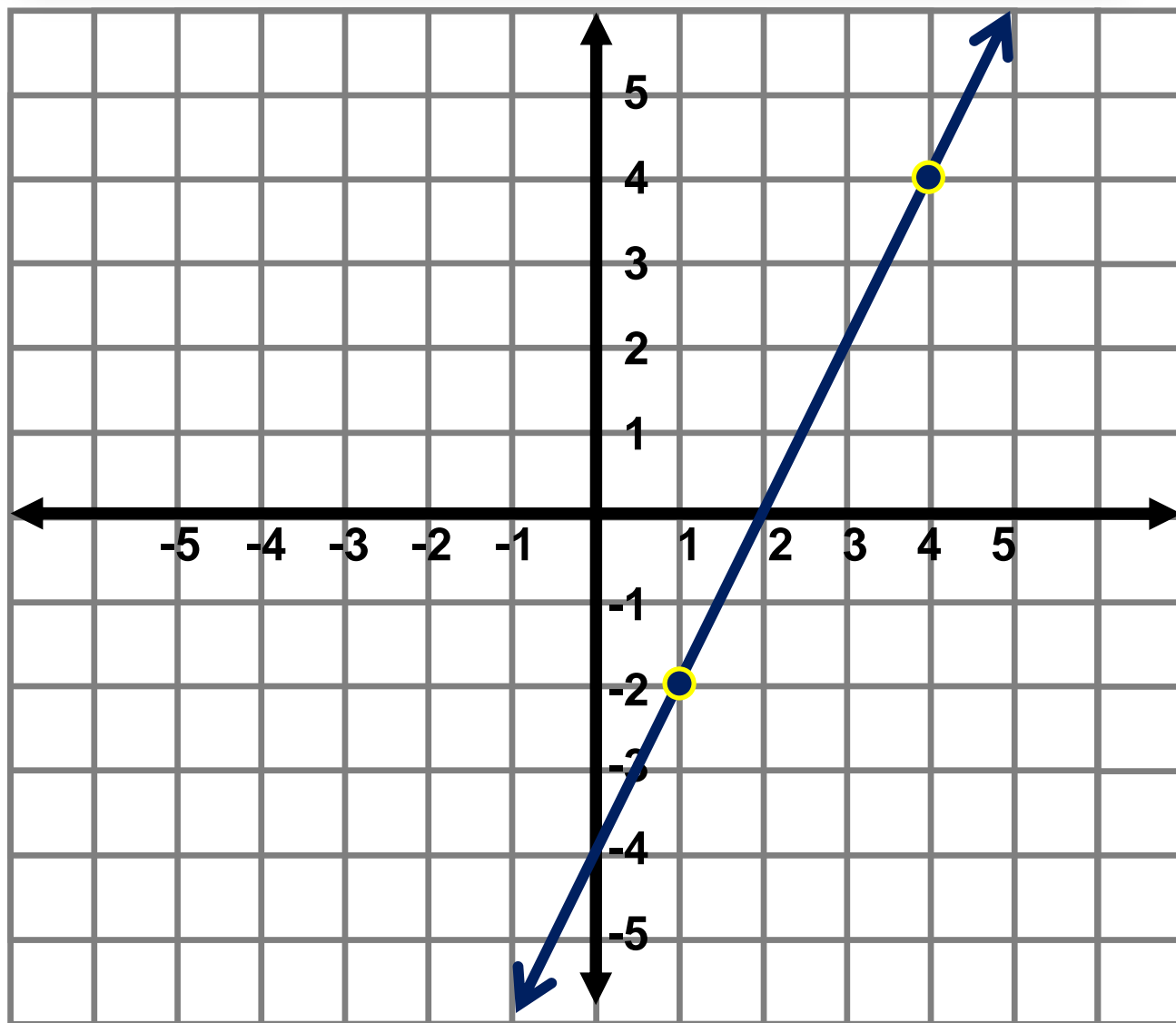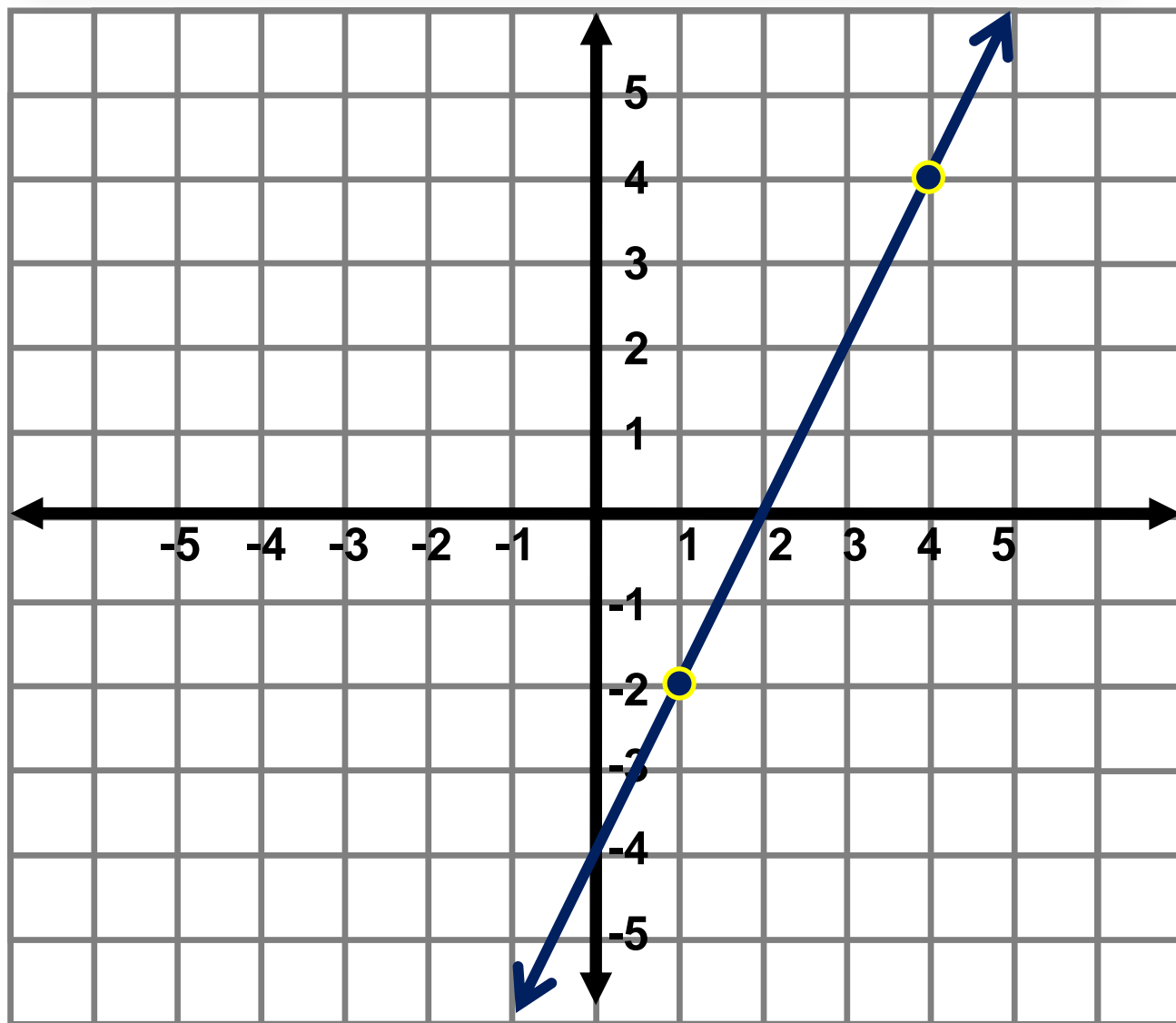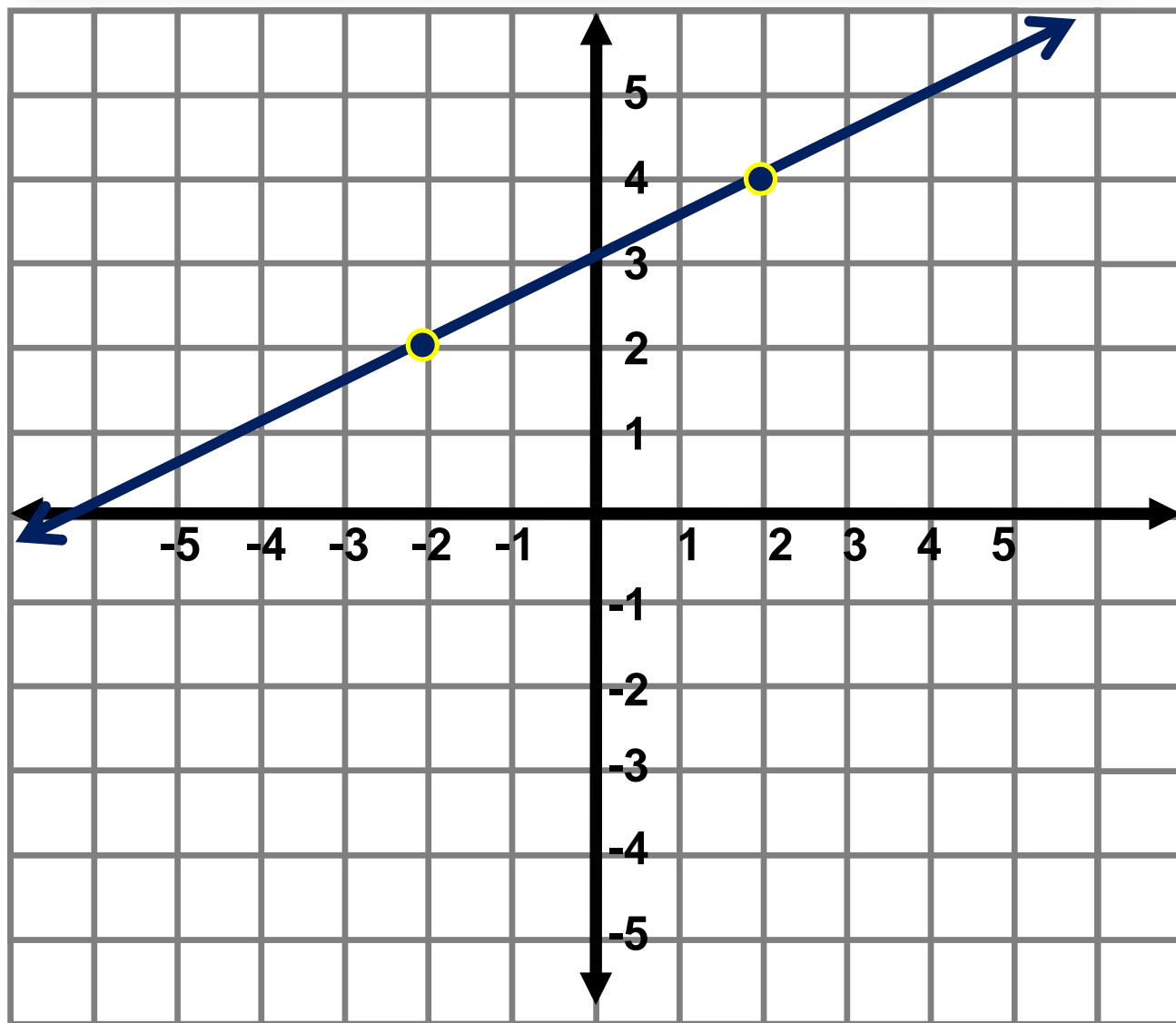# SLOPE OF A LINE

SLOPE OF A LINE
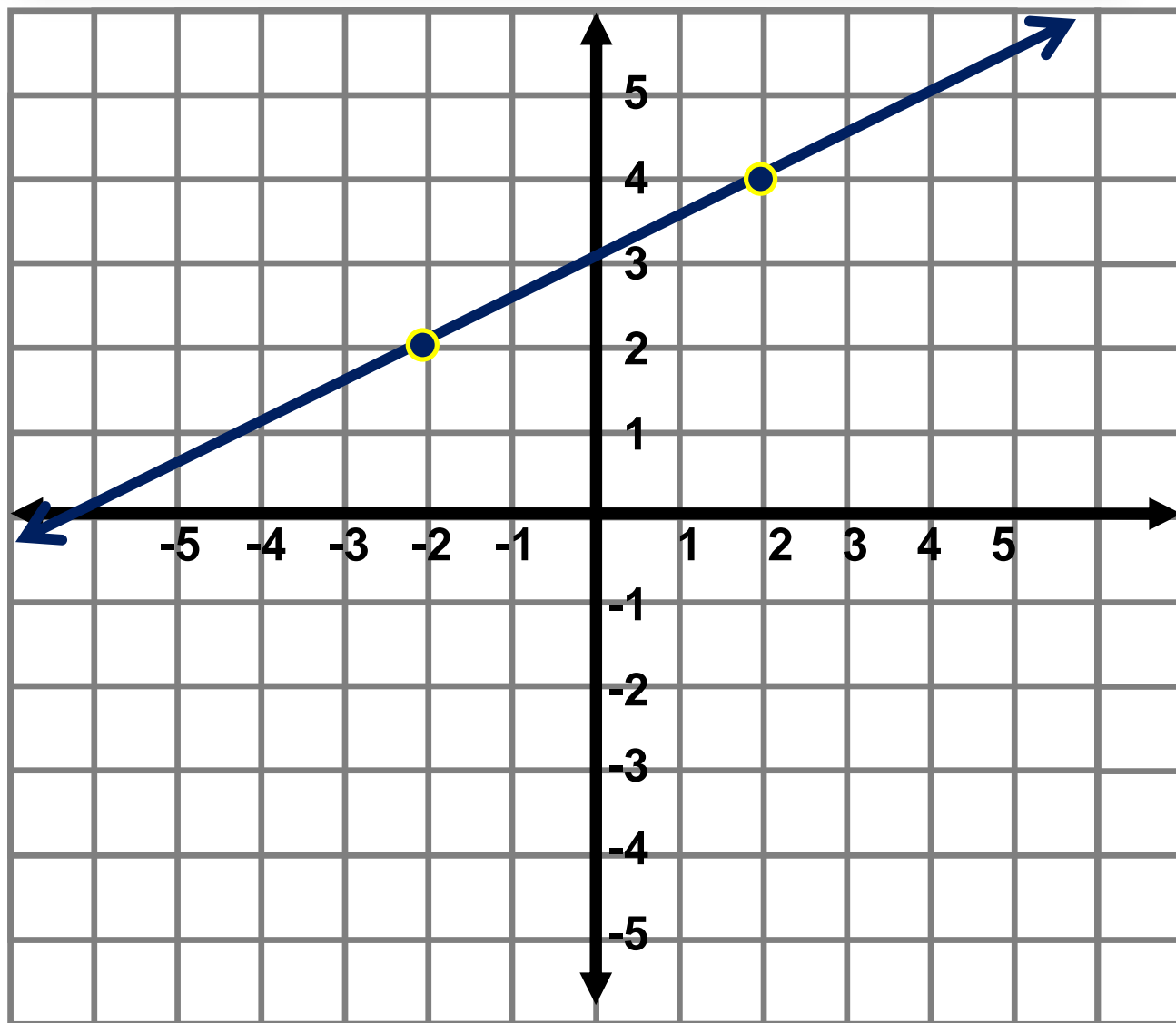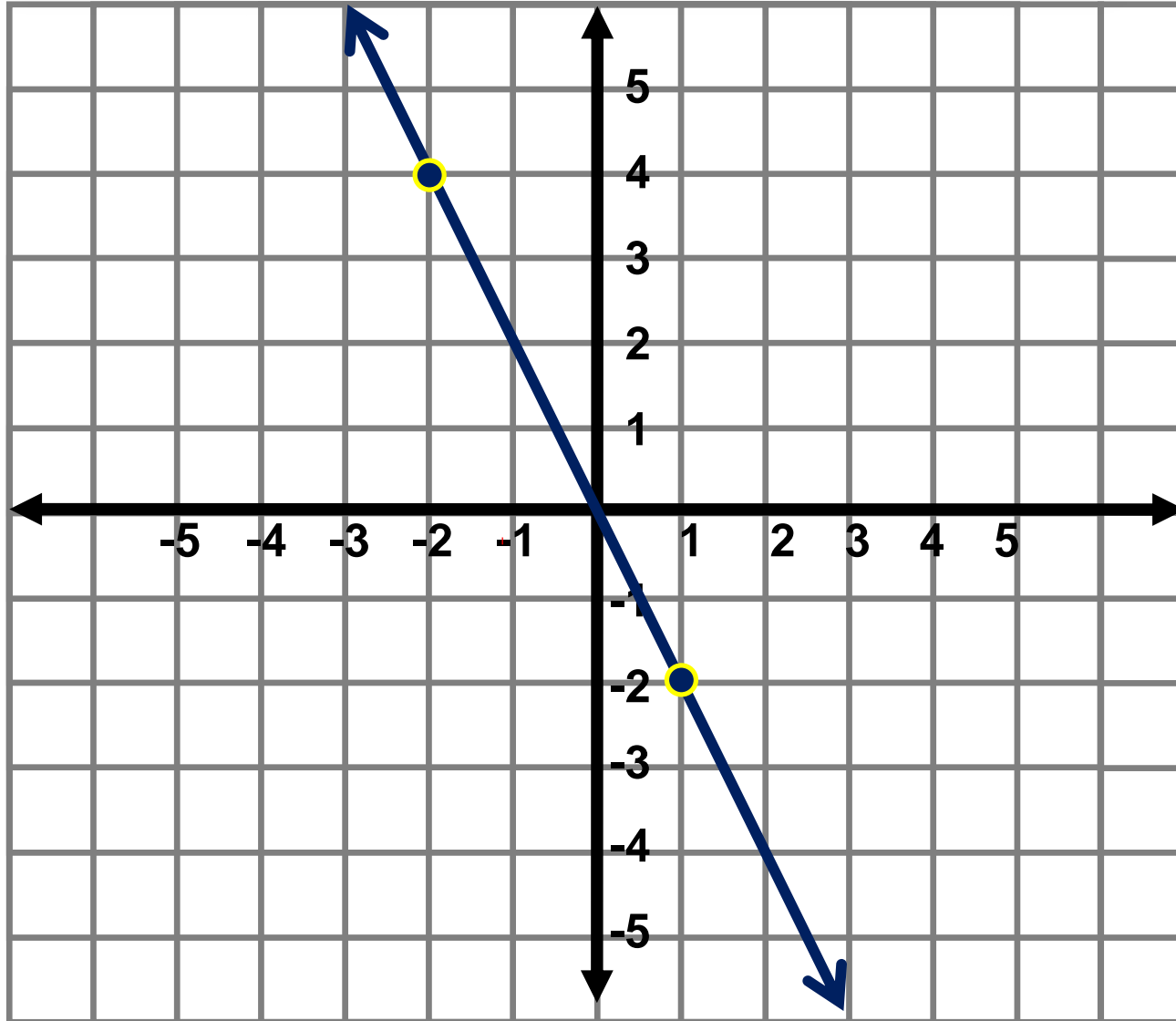
SLOPE OF A LINE

SLOPE OF A LINE
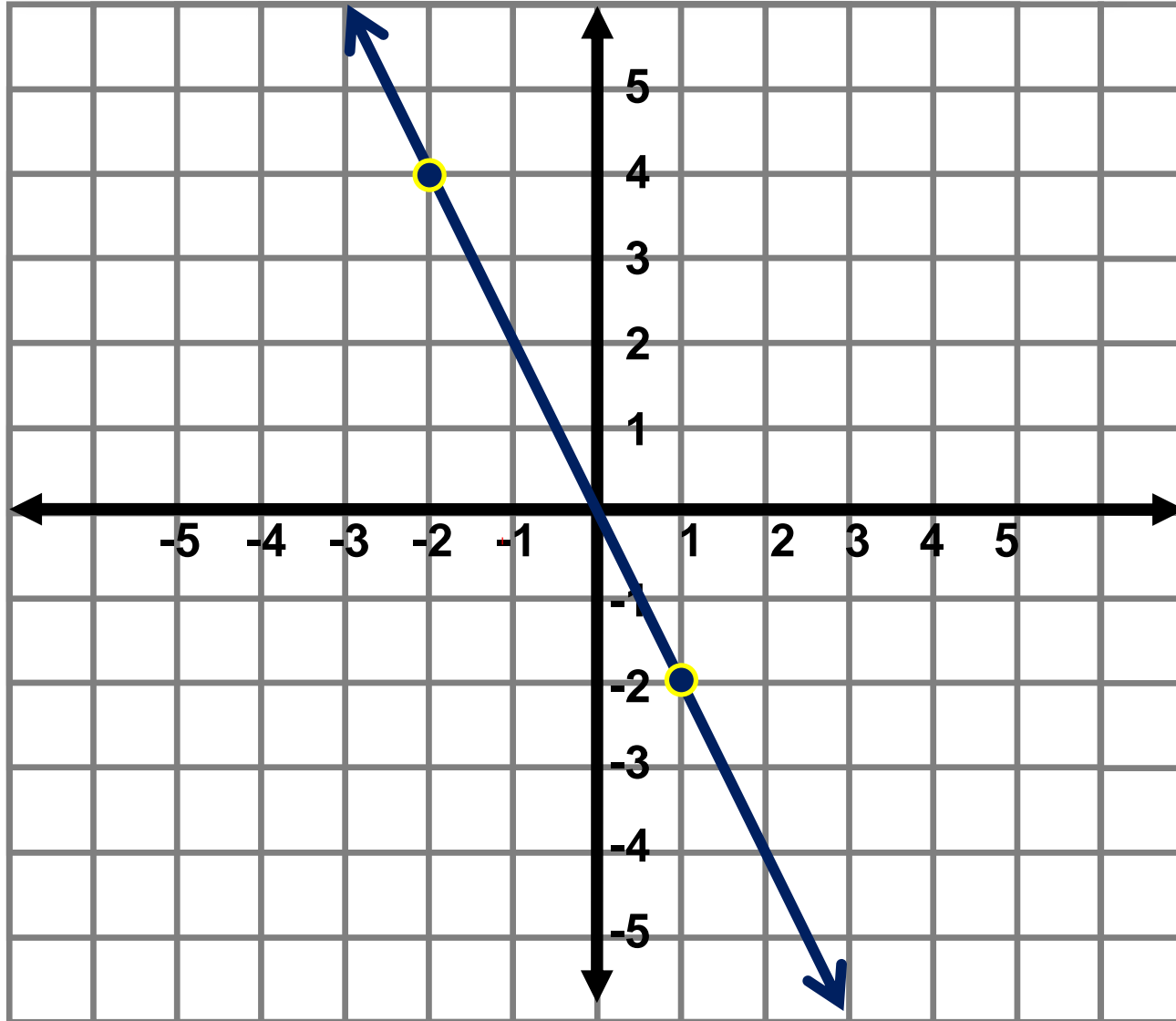
SLOPE OF A LINE

SLOPE OF A LINE

Name _____   Date _____

4.2 Slope of a Line
For use with Activity 4.2

Essential Question   How can the slope of a line be used to describe
the line?

Slope is the rate of change between any two points on
a line. It is the measure of the *steepness* of the line.

To find the slope of a line, find the ratio of the change in
y (vertical change) to the change in *x* (horizontal change).

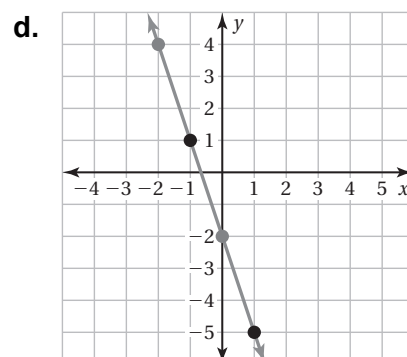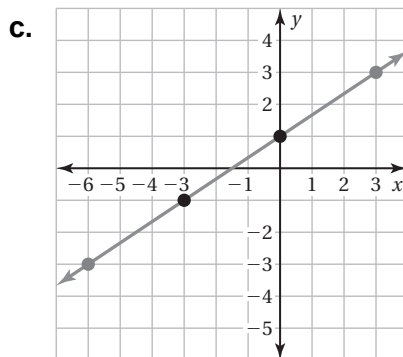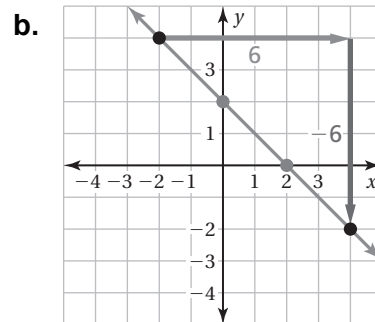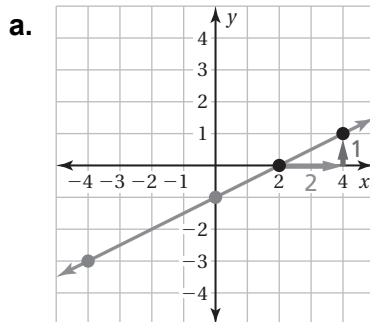$$\text{slope} \; = \; \frac{\text{change in } y}{\text{change in } x}$$

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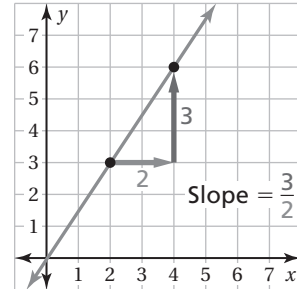
1   **ACTIVITY:** Finding the Slope of a Line

Work with a partner. Find the slope of each line using two methods.

Method 1: Use the two black points.

Method 2: Use the two gray points.

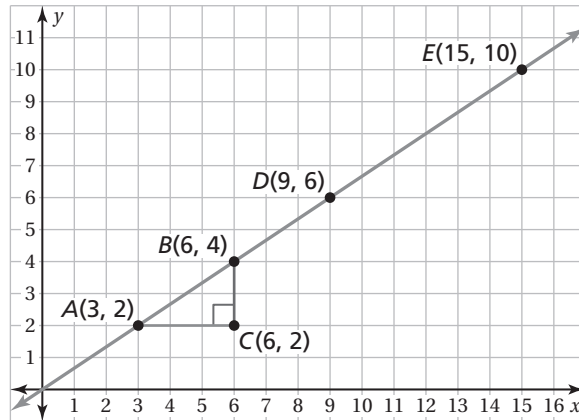**Do you get the same slope using each method? Why do you think this happens?**

a.

b.

c.

d.

4.2 **Slope of a Line** (continued)

2 **ACTIVITY:** Using Similar Triangles

Work with a partner. Use the figure shown.

a. △*ABC* is a right triangle formed by drawing a horizontal line segment from point *A* and a vertical line segment from point *B*. Use this method to draw another right triangle, △*DEF*.


b. What can you conclude about △*ABC* and △*DEF*? Justify your conclusion.

c. For each triangle, find the ratio of the length of the vertical side to the length of the horizontal side. What do these ratios represent?

d. What can you conclude about the slope between any two points on the line?
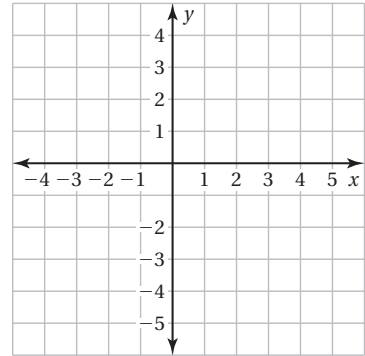
3 **ACTIVITY:** Drawing Lines with Given Slopes

Work with a partner.

a. Draw two lines with slope $\frac{3}{4}$. One line passes through $(-4, 1)$, and the other line passes through $(4, 0)$. What do you notice about the two lines?
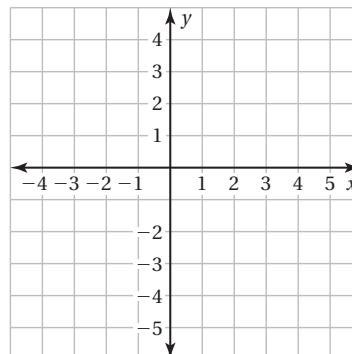
4.2 **Slope of a Line** (continued)

b. Draw two lines with slope $-\dfrac{4}{3}$. One line passes through $(2, 1)$, and the other line passes through $(-1, -1)$. What do you notice about the two lines?
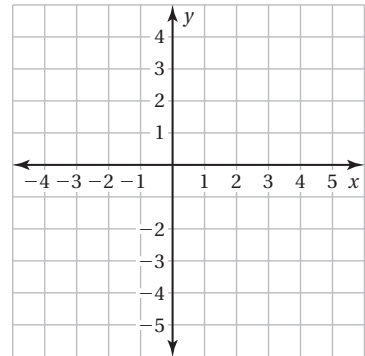
c. CONJECTURE Make a conjecture about two different nonvertical lines in the same plane that have the same slope.

d. Graph one line from part (a) and one line from part (b) in the same coordinate plane. Describe the angle formed by the two lines. What do you notice about the product of the slopes of the two lines?

e. REPEATED REASONING Repeat part (d) for the two lines you did *not* choose. Based on your results, make a conjecture about two lines in the same plane whose slopes have a product of -1.
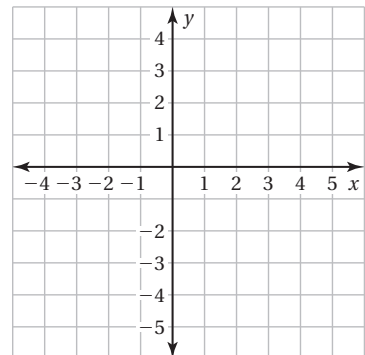
What Is Your Answer?

4. IN YOUR OWN WORDS How can you use the slope of a line to describe the line?