Slope

How do engineers build bridges?

How do engineers build roads?

How can we write 7% as a fraction?

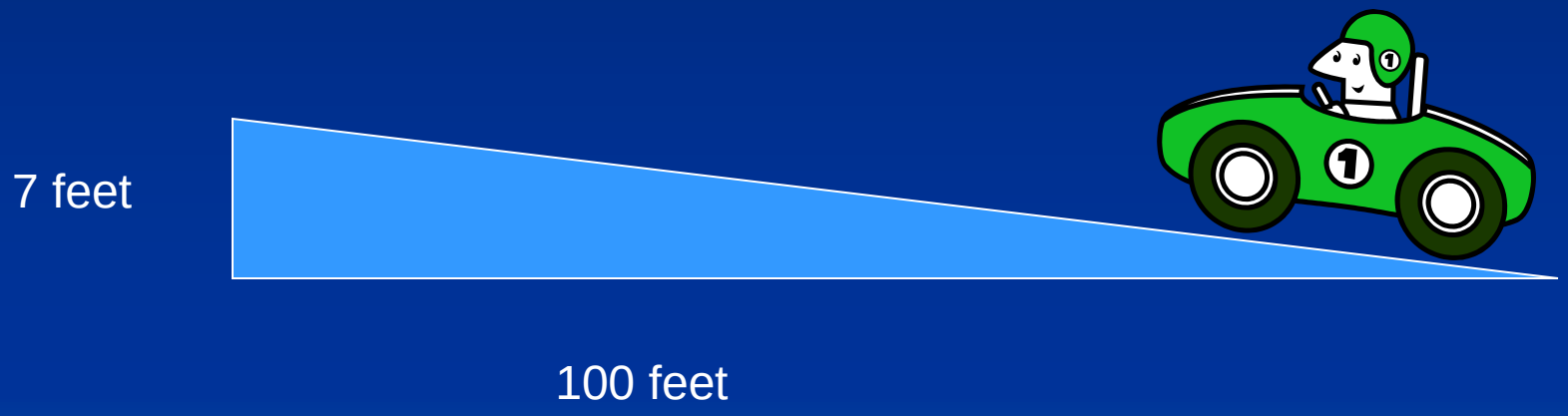
7% as a fraction??

- Remember than any percent is a part of 100.

$$7\% = \frac{7}{100}$$

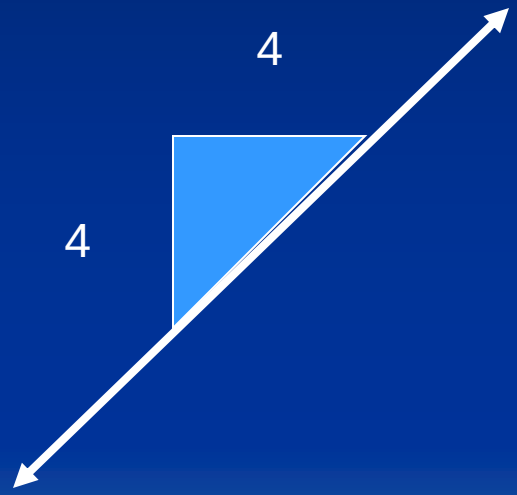
The grade of a road is the same as slope

- Here is the picture:



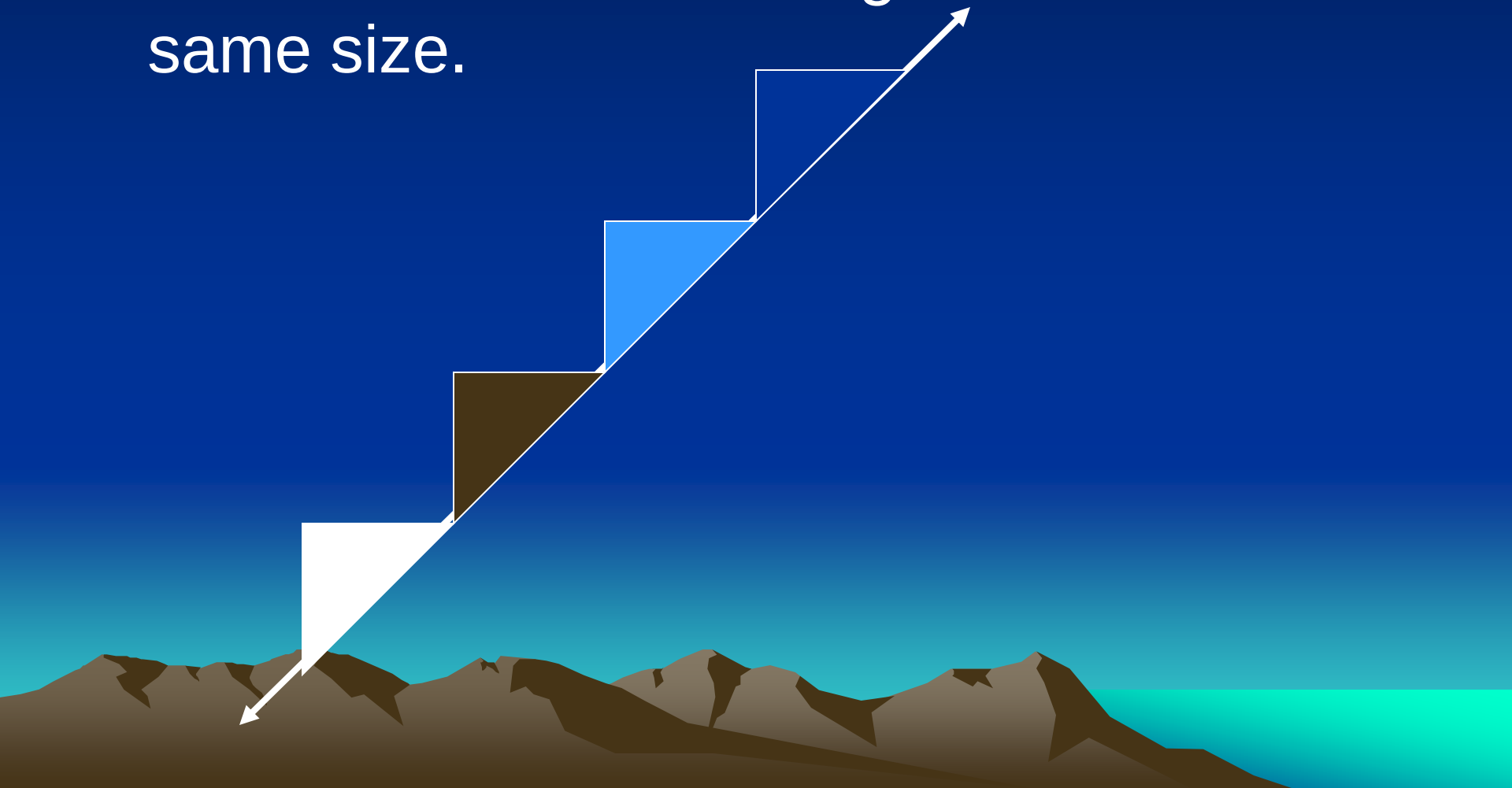
Slope of a line

- The slope measures the “rise” and “run” of the stairs beneath or above the line.



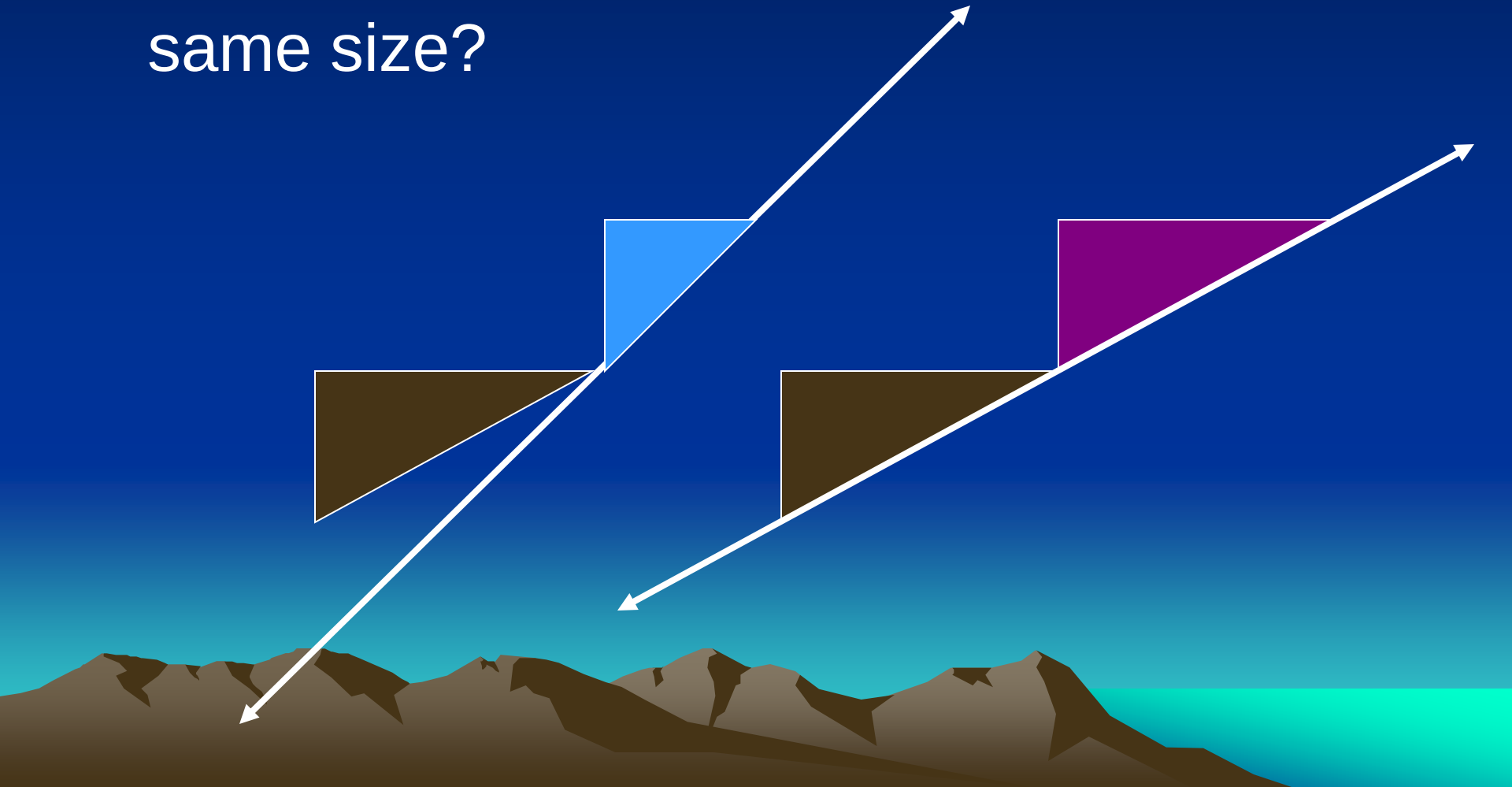
Slope of a line

- The “stairs” are all through the line and the same size.



Slope of a line

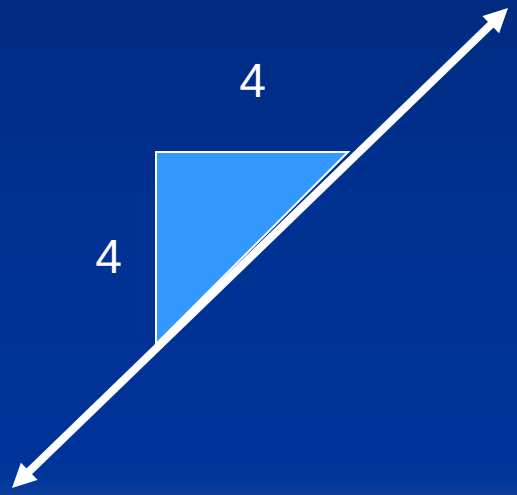
- Can I make a line if the stairs aren't the same size?



Slope of a line (m)

- To find the slope, use the formula

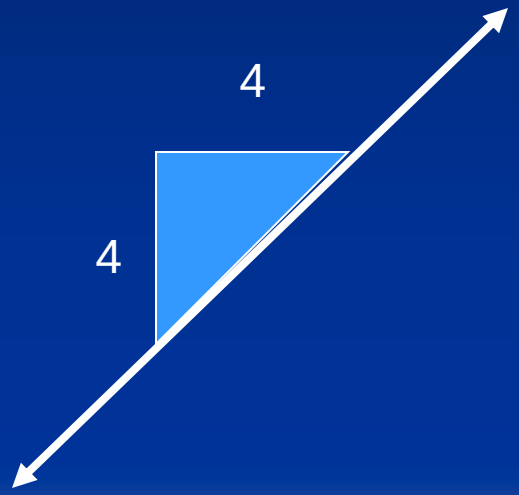
$$m = \frac{rise}{run}$$



Slope of a line (m)

- To find the slope, use the formula

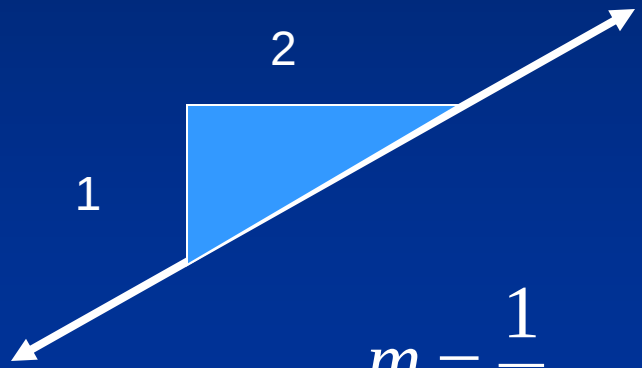
$$m = \frac{4}{4} = 1$$



Slope of a line (m)

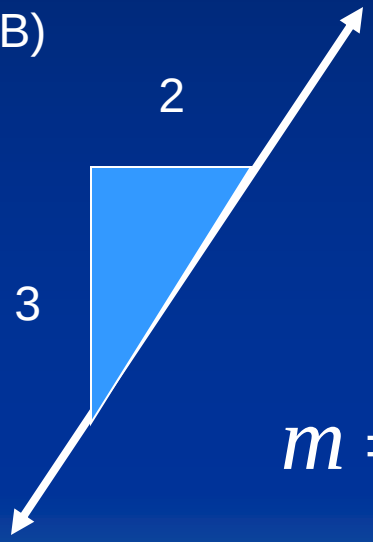
- Find the slope of the following lines:

A)



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

B)

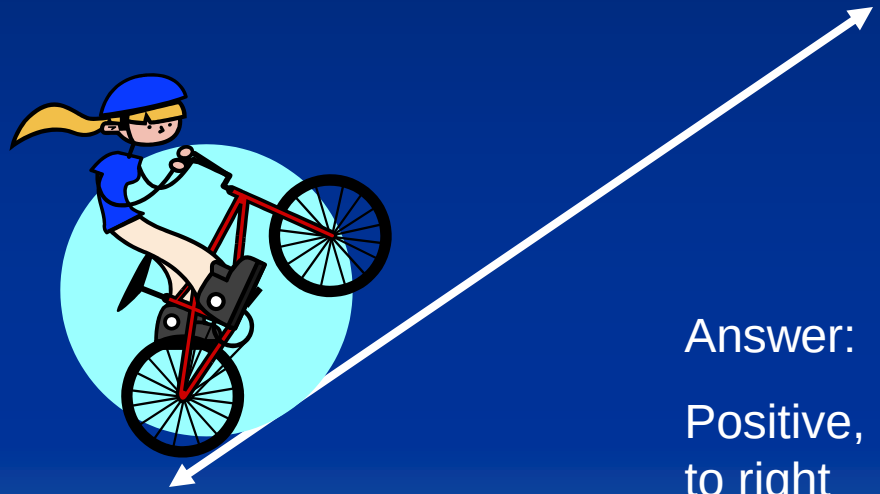


$$m = \frac{3}{2}$$

$$m = \frac{rise}{run}$$

Slope of a line (m)

- Is the slope positive or negative?



Answer:

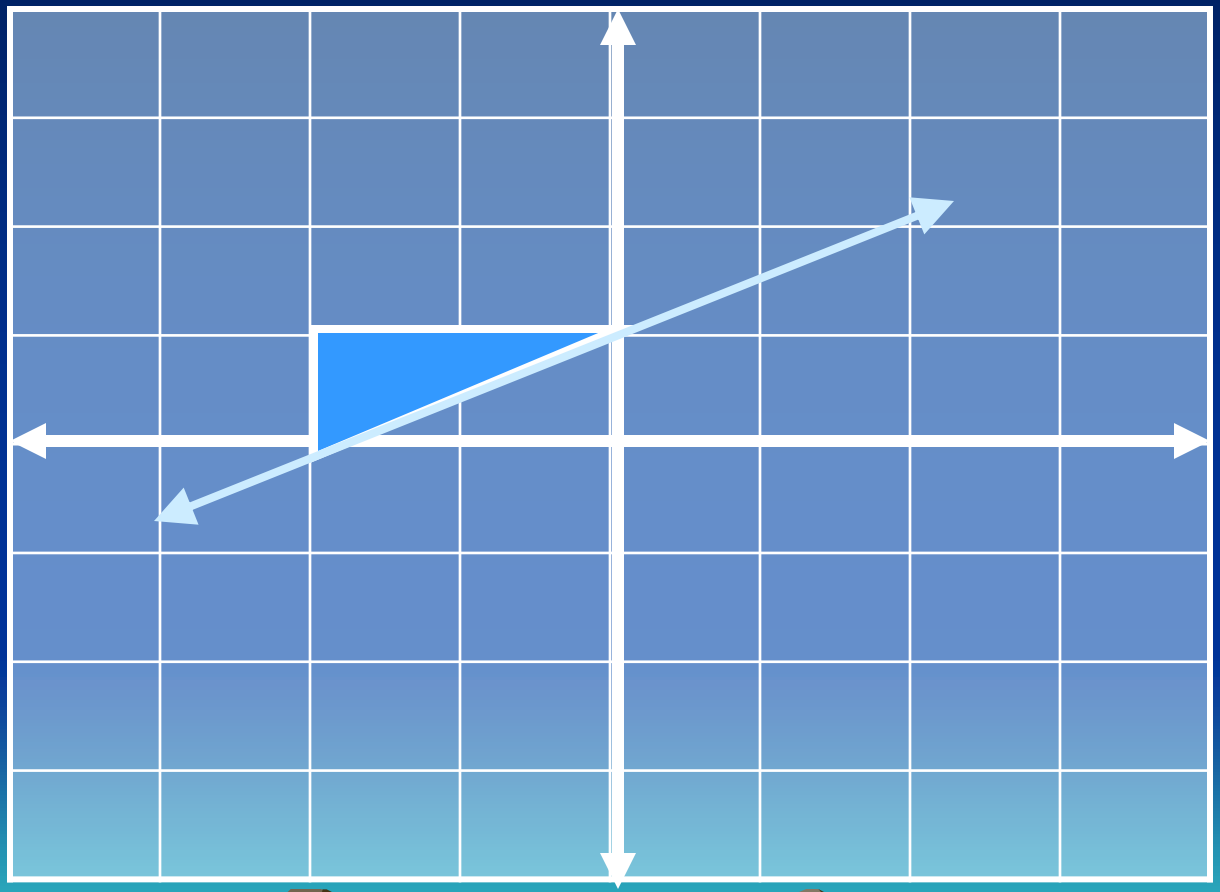
Positive, Read from left to right

Try for yourself

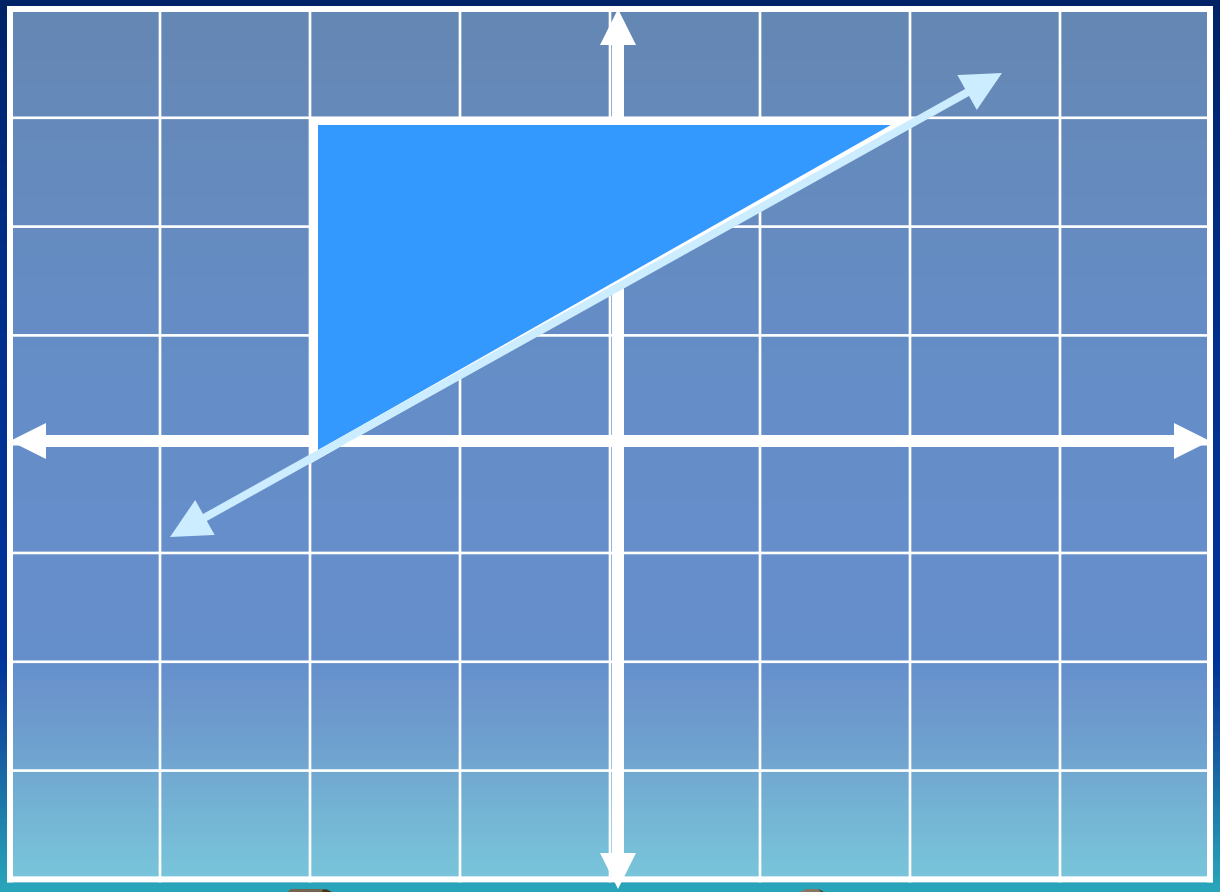
- Draw 2 lines with the following slopes on your graph paper.

- A) $m = \frac{1}{2}$ B) $m = \frac{3}{4}$

- Start anywhere on your coordinate plane.



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



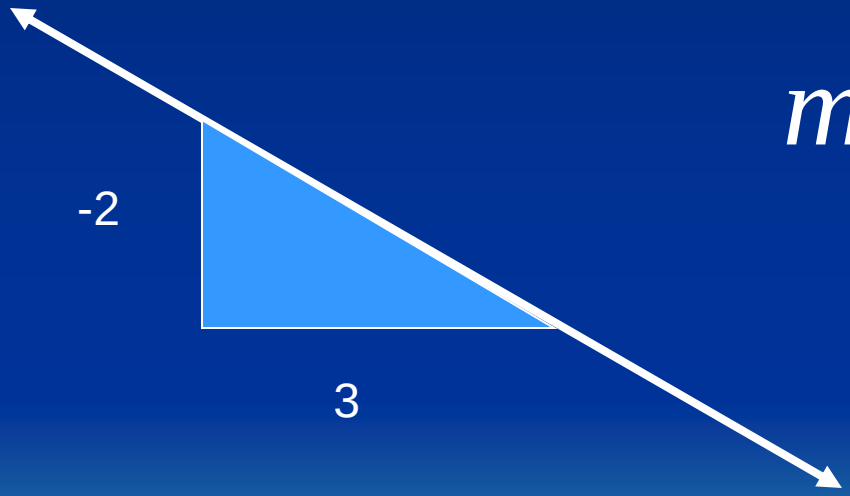
$$m = \frac{3}{4}$$

Slope of a line (m)

- The last 2 lines had a positive slope, let's look at slopes with negative slopes

Slope of a line (m)

- We still use rise over run, except the “stairs” are underneath the line.



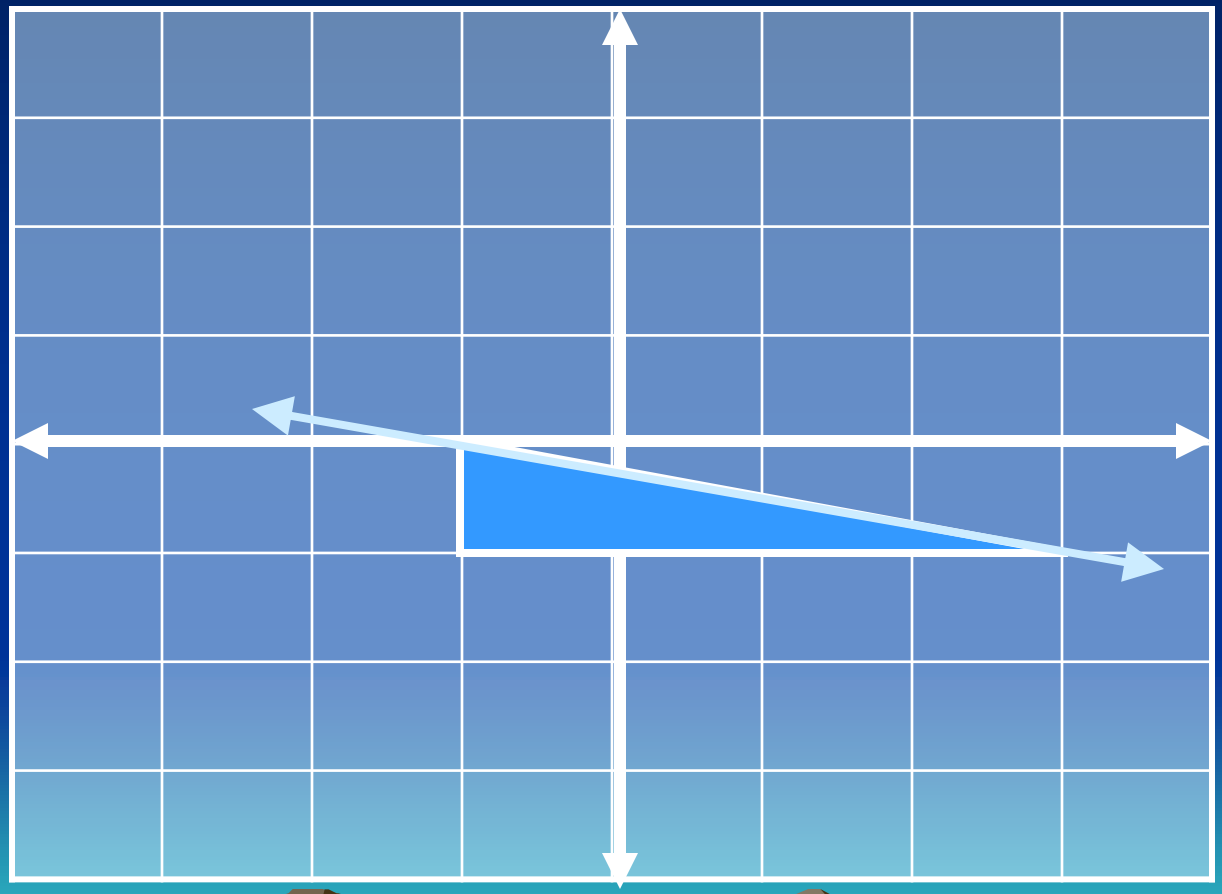
$$m = \frac{-2}{3}$$

Try for yourself

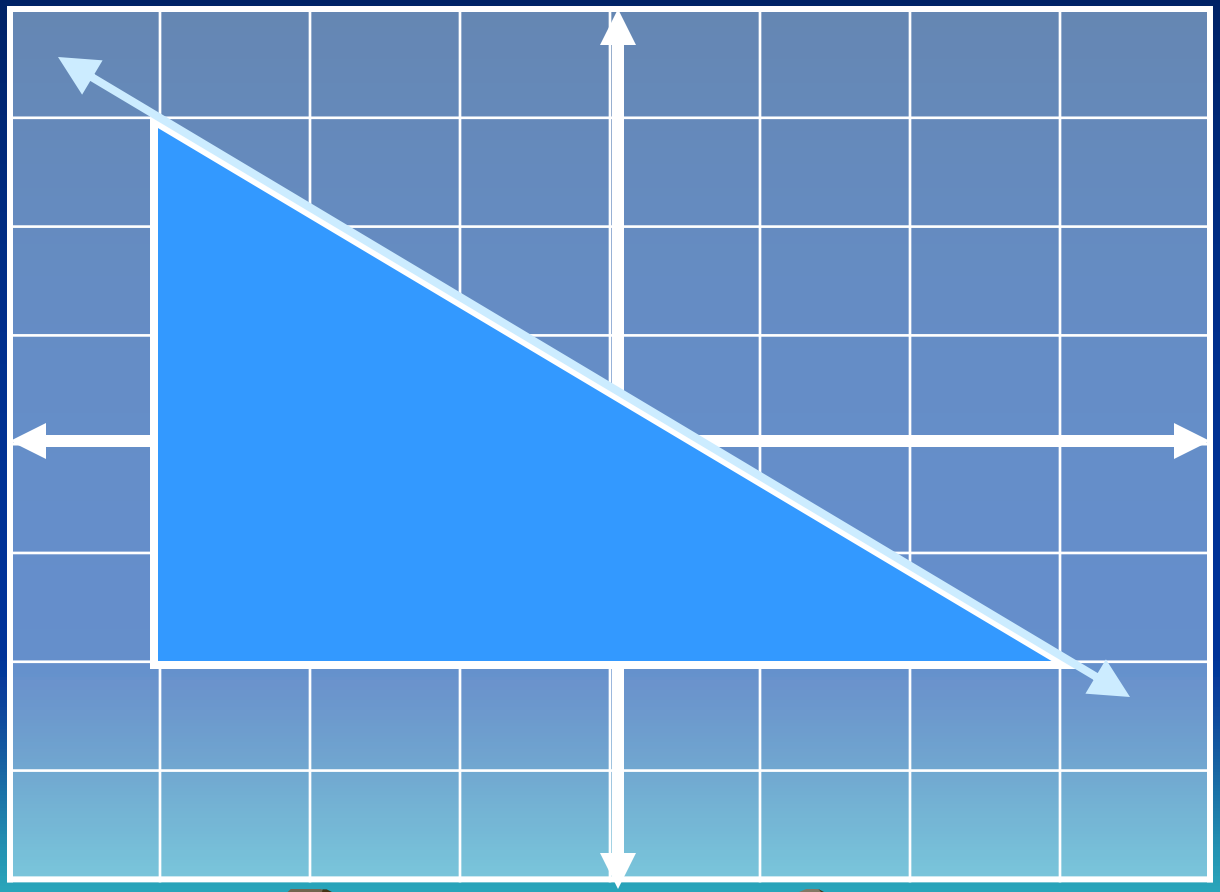
- Draw 2 lines with the following slopes on your graph paper.

- C) $m = \frac{-1}{4}$ D) $m = \frac{-5}{6}$

- Start anywhere on your coordinate plane.

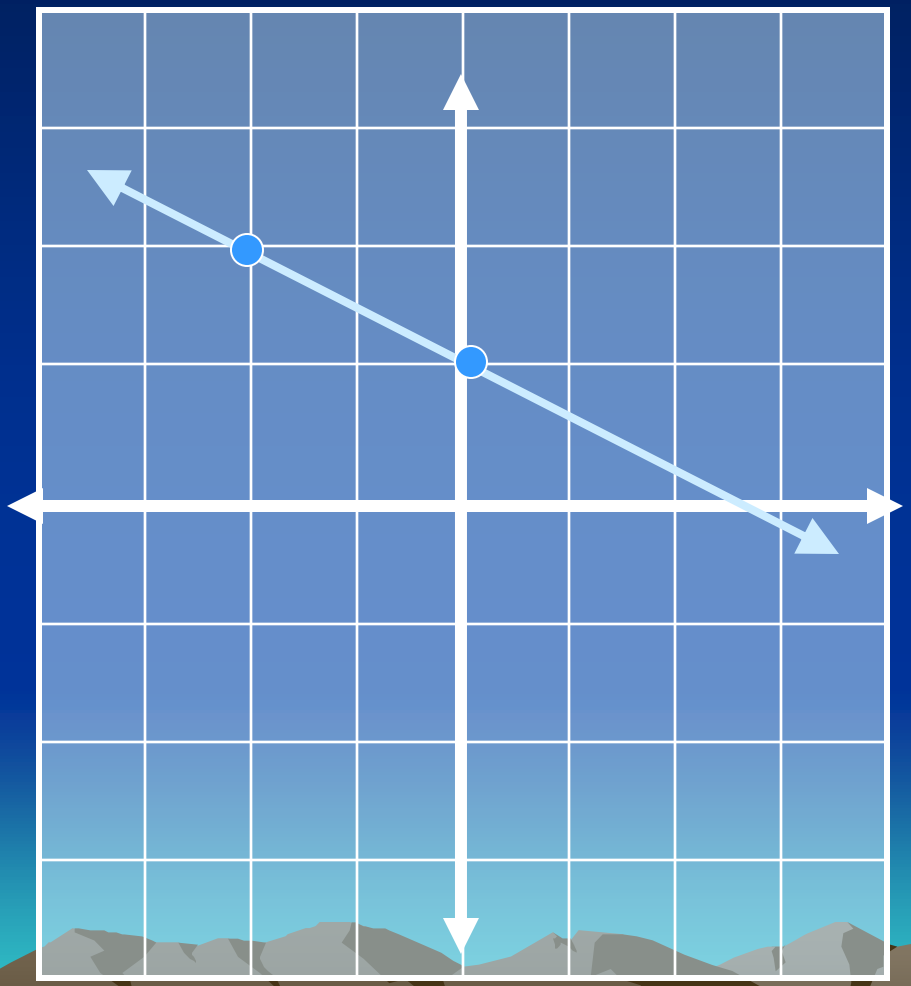


$$m = \frac{-1}{4}$$



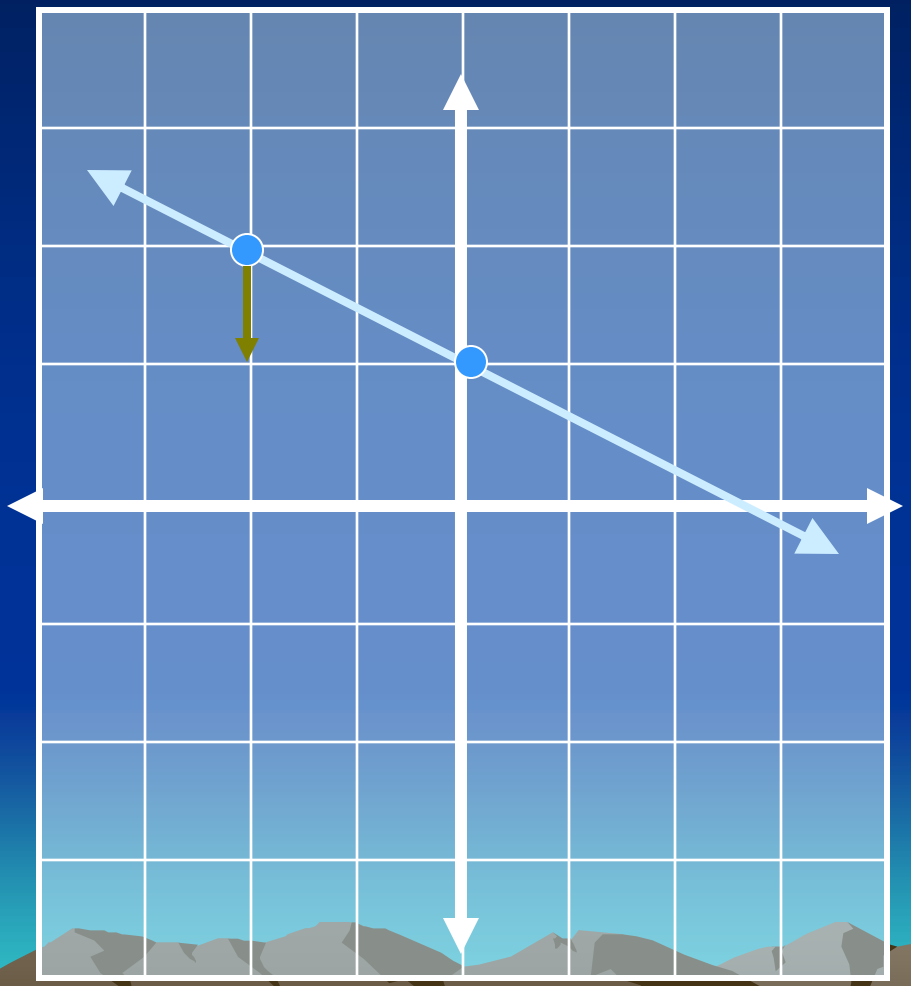
$$m = \frac{-5}{6}$$

What do you need to do?



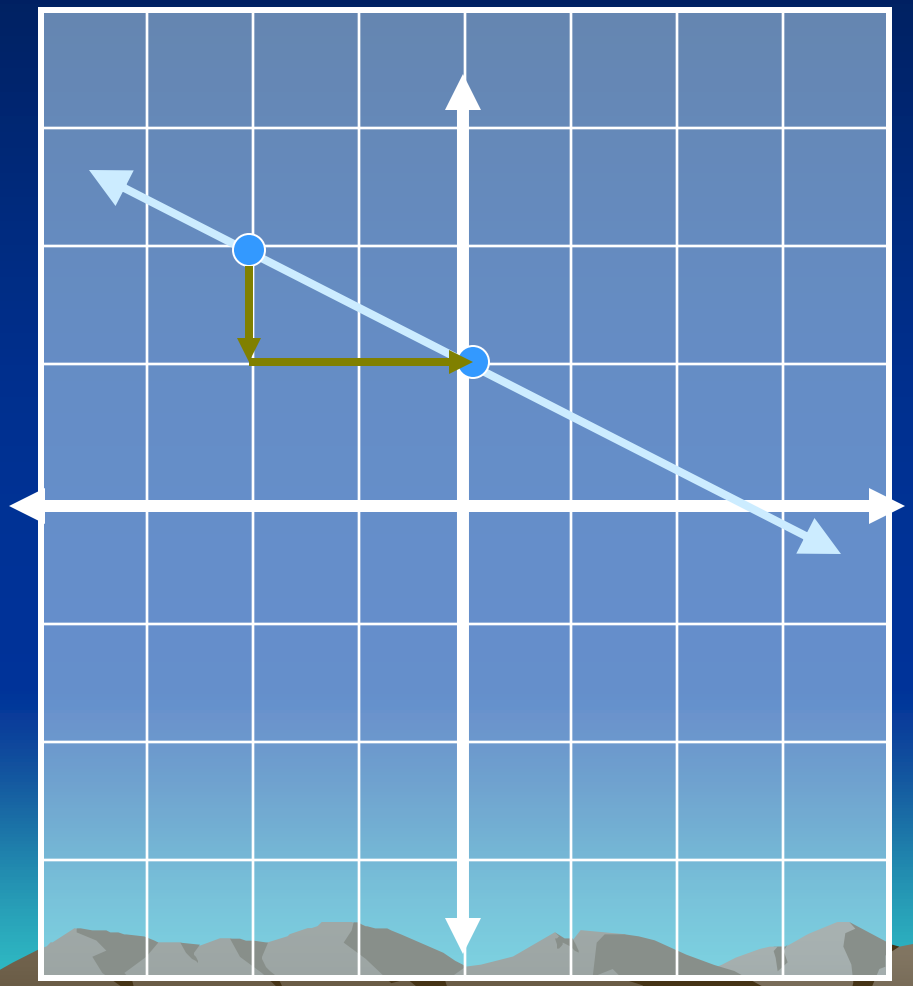
- Identify the slope on a graph
- First find where the line goes through (intersects the grid lines)
- Draw a triangle and calculate the slope

What do you need to do?



- Decide if it's a negative or positive slope
- Trace the triangle on the graph paper
- On the CAHSEE you can write on the test!

What do you need to do?



- Use the formula

$$m = \frac{rise}{run}$$

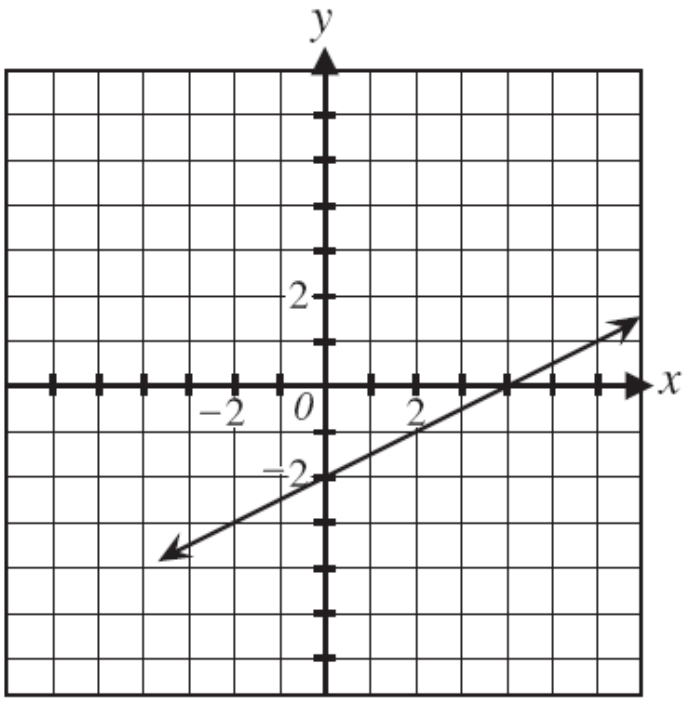
- Rise is negative 1
- Run is 2

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

Now it's your turn

- Identify the slope on each line.
- First make points where the line intersects the grid
- Then calculate the slope
- If you finish early, then also identify where the line crosses the y-axis.

Question



71. What is the slope of the line shown in the graph above?

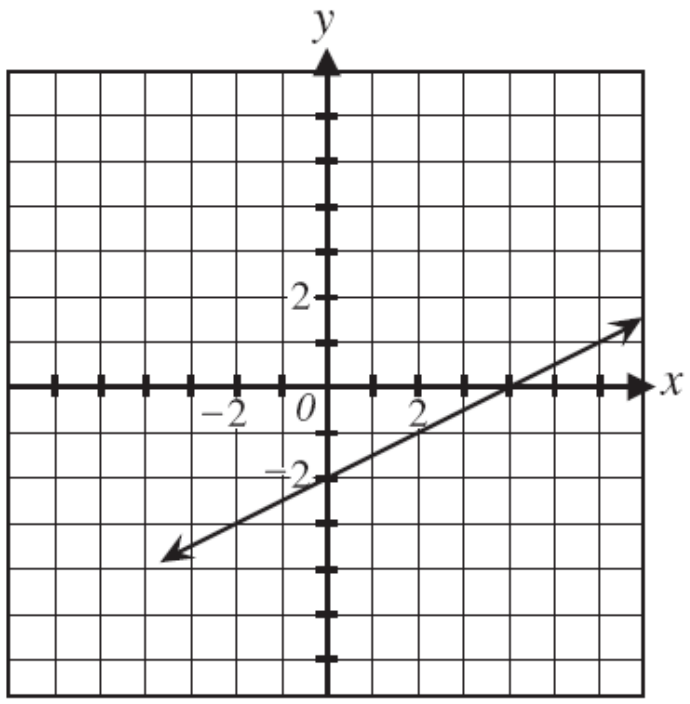
A -2

B $-\frac{1}{2}$

C $\frac{1}{2}$

D 2

Question



71. What is the slope of the line shown in the graph above?

A -2

B $-\frac{1}{2}$

C $\frac{1}{2}$

D 2