Name: _____ Date: _____

MATH 4.2

4.2 Calculating Slope from a Graph

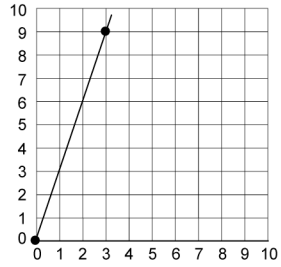
READ CPO Science

To determine the slope of a line in a graph, first choose two points on the line. Then count how many steps up or down you must move to be on the same horizontal line as your second point. Multiply this number by the scale of your horizontal axis. For example, if your *x*-axis has a scale of 1 box = 20 cm, then multiply the number of boxes you counted by 20 cm.

Put the result along with the positive or negative sign as the top (numerator) of your slope ratio. Then count how many steps you must move right or left to land on your second point. Multiply the number of steps by the scale of your vertical axis. Place the results as the bottom (denominator) of your slope ratio. Then reduce the fraction of your ratio. This number is the slope of the line. Note: The letter *m* is used to represent slope in an equation.

EXAMPLES

A

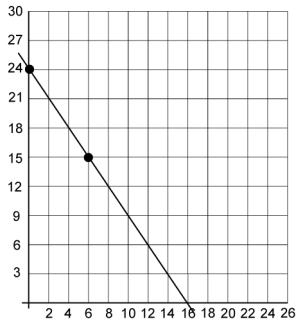


The chosen points for Example A are (0, 0) and (3, 9). There are many choices for this graph, but only only slope. If you have the point (0, 0), you should choose it as one of your points.

It takes 9 vertical steps to move from (0, 0) to (0, 9). Put a 9 in the numerator of your slope ratio (or subtract 9 – 0). Then count the number of steps to move from (0, 9) to (3, 9). This is your denominator of your slope ratio. Again, you can do this by subtraction (3 – 0).

$$m = \frac{9}{3} = \frac{3}{1}$$

B



The two points that have been chosen for Example B are (0, 24) and (6, 15). Be careful of the scales on each of the axes.

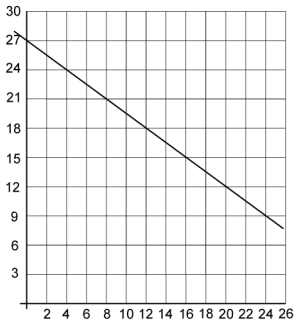
It takes 3 vertical steps to go from (0, 24) to (0, 15). But each of these steps has a scale of 3. So you put a –9 into the numerator of the slope ratio. It is *negative* because you are moving down from one point to the other. Then count the steps over to (6, 15). There are 3 steps but each counts for 2 so you put a 6 into the denominator of the slope ratio.

$$m = \frac{-9}{6} = \frac{-3}{2}$$

PRACTICE

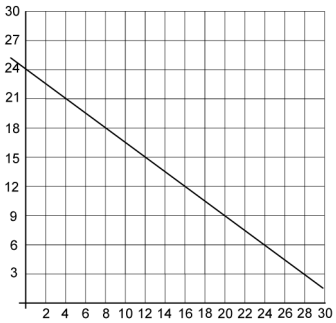
Find the slope of the line in each of the following graphs:

Graph #1:



m = _____

Graph #2:



m = _____

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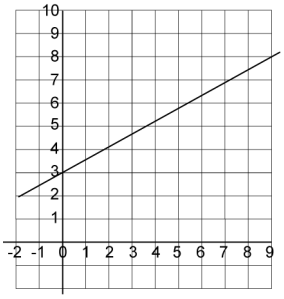
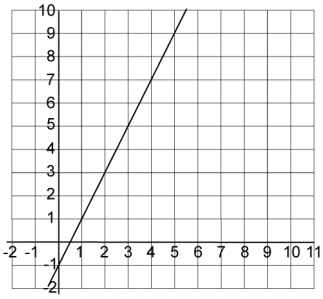
Graph #3:



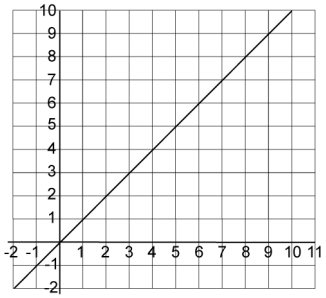
m = _____

Graph #4:



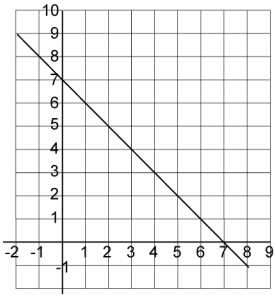
m = _____

Graph #5:



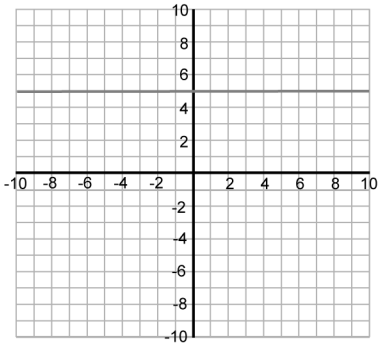
m = _____

Graph #6:



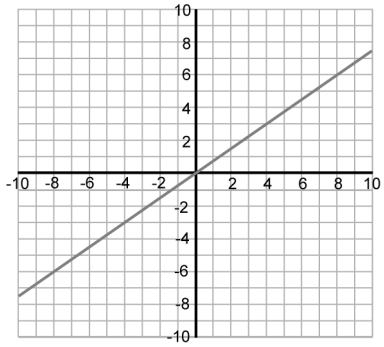
m = _____

Graph #7:



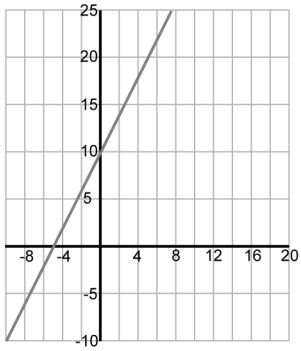
m = _____

Graph #8:



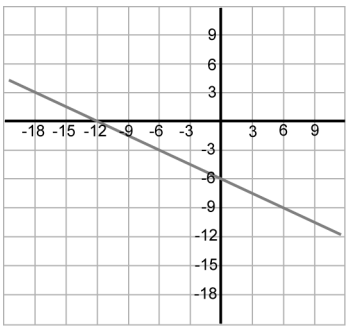
m = _____

Graph #9:



m = _____

Graph #10:



m = _____