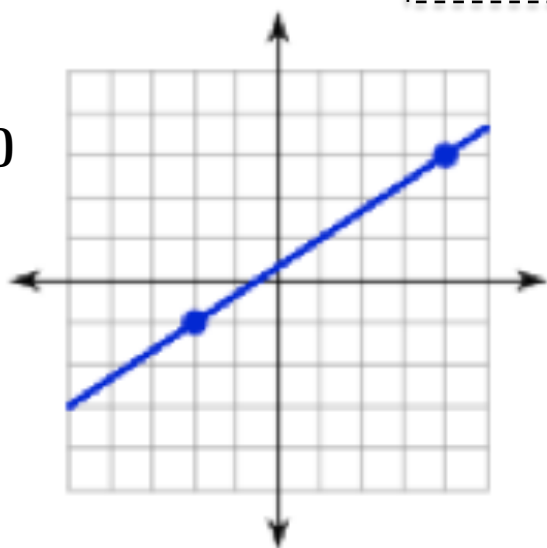# Section 5.3b – Slope

MPM1D

Part 1: Do It Now

Find the slope of each of the following lines by looking at the graph and determining the rise and the run.
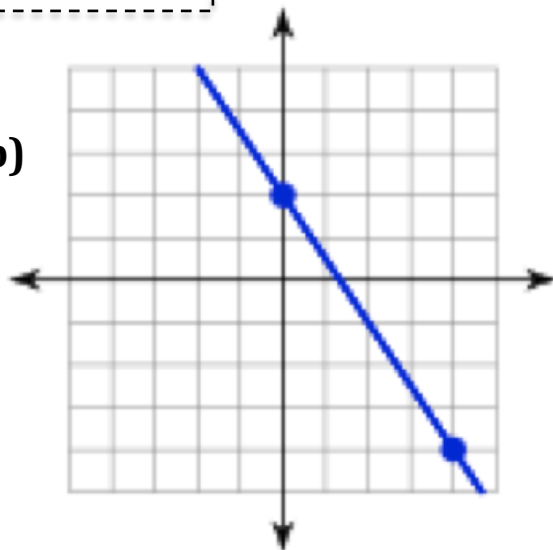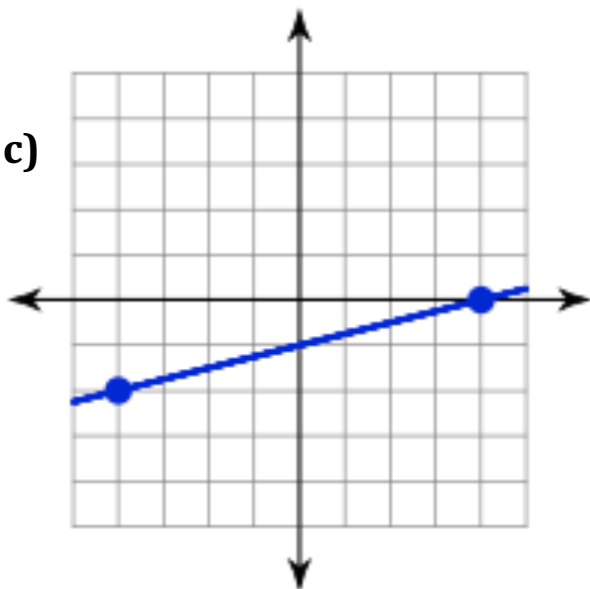
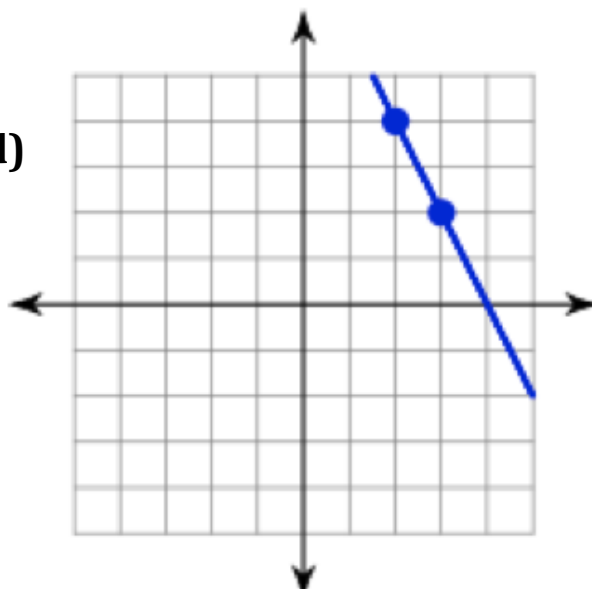Remember: $slope = \dfrac{rise}{run}$

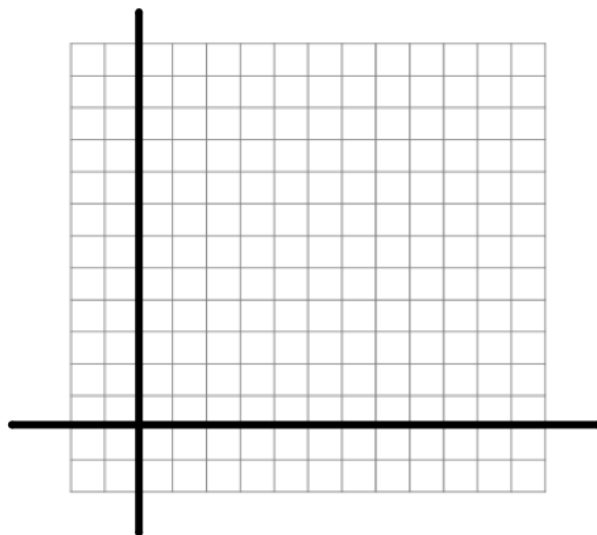**a)**

$m =$

b)

$m =$

c)

$m =$

d)

$m =$

Part 2: Draw a graph to find another point on a line

Example 1: A line segment has one endpoint, A(4,7), and slope of $-\frac{3}{2}$. Find the coordinates of another possible endpoint, B.

Step 1: Plot the point A(4,7).

Step 2: Use the slope $-\frac{3}{2}$ to find another endpoint.

Note: $-\frac{3}{2} = \frac{-3}{2}$, therefore the line has a rise of _____ and run of _____

To plot another point, start at point A and use the slope of the line to plot another point.

The rise of -3 tells us we should go _____ 3 units.

The run of 2 tells us we should go _____ 2 units.

Another possible endpoint is: (,   )

Note: There are an infinite number of solutions!!! What would have happen if you used a slope of $\frac{3}{-2}$? Why does this happen?

Example 2:

If a line has slope of $-\frac{1}{2}$, and the line passes through the point (4 , 5) determine the coordinates of two points to the left, and two points to the right on the same line.

$$\text{Note: } -\frac{1}{2} = \frac{-1}{2} = \frac{1}{-2}$$

Graphical solution:
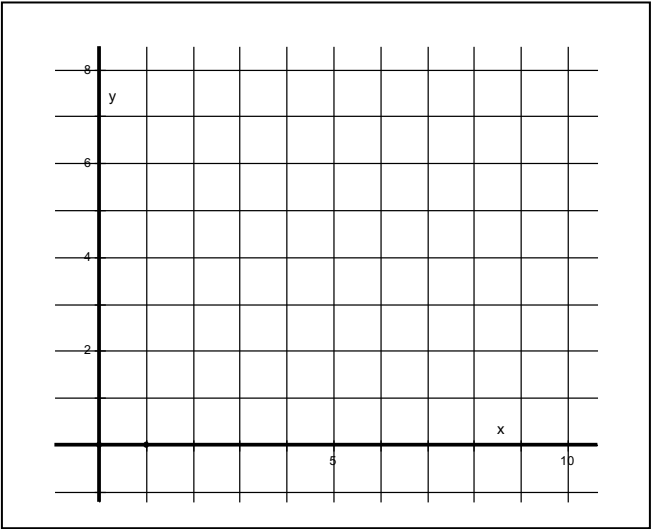('move' to other points according to the slope)

Table solution:
('move' to other points according to the slope)

x	y
4	5

Example 3:

If a line has slope of $m = \frac{1}{3}$, and the line passes through the point (-2 , -1) determine the coordinates of a point to the left and right on the same line.

Graphical solution:
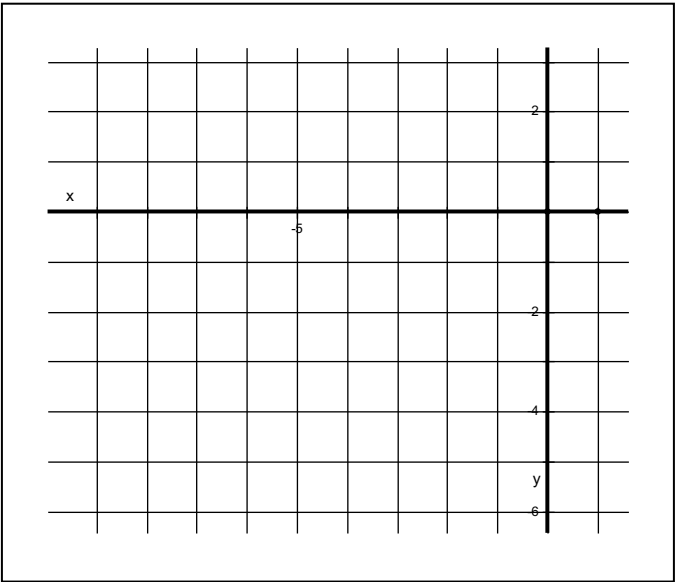('move' to other points according to the slope)

Table solution:
('move' to other points according to the slope)

x	y
-2	-1

Part 3: Use the coordinates to find another point on the line

Example 4: A line segment has one endpoint A(-2,7) and a slop of $-\frac{4}{3}$. Find the coordinates of another point on the line.

$-\frac{4}{3} = \frac{-4}{3}$ Therefore the line has a rise of _____ and a run of _____.

Add the rise to the y-coordinate and the run to the x-coordinate to find another possible point.

Other endpoint = (-2 + 3 , 7 + (-4)) =

<div style="border:1px solid black">

Note: you could also subtract the rise and run to find a point to the other side on the line.

</div>

Example 5: A line segment has one endpoint A(3,-5) and a slope of $-\frac{7}{2}$. Find the coordinates of another point on the line.