

## Warm Up: Plotting points on a Cartesian Plane

Given the following items place them appropriately on the Cartesian Plane:

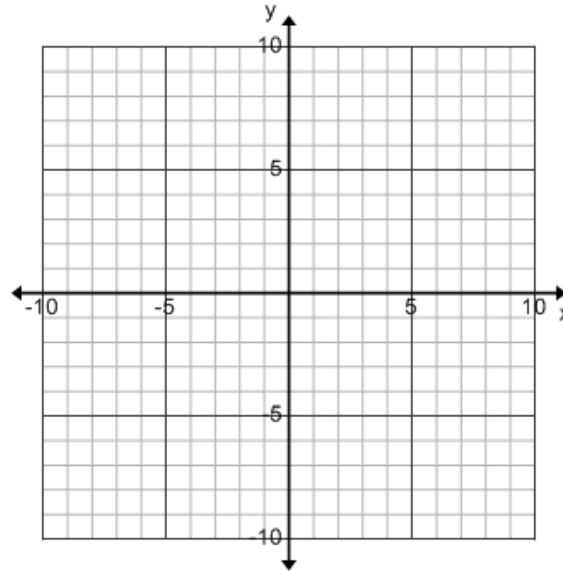
- A (2, 3)
- B (-8, 8)
- C (7, -2)
- D (-4, -7)
- E (-6, 0)

Quadrant I

Quadrant II

Quadrant III

Quadrant IV



# MPM 1DI - Unit 4

## Modelling with Graphs

(Chapter 5 in textbook!)

## Day 3 - Slope

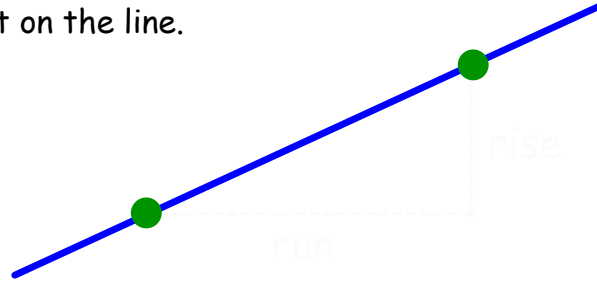
Today we will:

1. Define slope.
2. Identify different methods to determine slope of a line.

# Lines and Slope

The slope of a line is the **steepness** of the line.

To calculate the slope, we look at the change in distance, both vertically and horizontally, from one point to another point on the line.



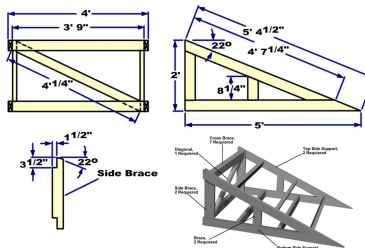
$$\text{slope} = \frac{\text{rise}}{\text{run}}$$

Note: Instead of writing the word slope all the time, in math we use a lower case m. This comes from the french word "montier" which means to go up!

Why is being able to determine the steepness of a line an important skill?



### Skateboard Ramp Plans



What is the slope of the skateboard ramp above?

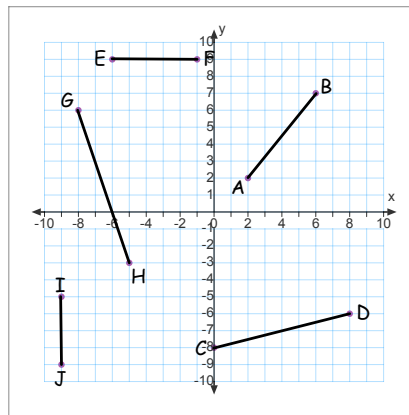
$$\text{slope} = \frac{\text{rise}}{\text{run}}$$

slope =

Explain the meaning of the slope in this situation.

The ramp rises 2 feet vertically for every 5 feet run horizontally.

Example 1: Determine the slope of each line segment given on the graph below.



Is there a way to calculate the slope if we are not given the graph, but instead just have two points that are on the line?

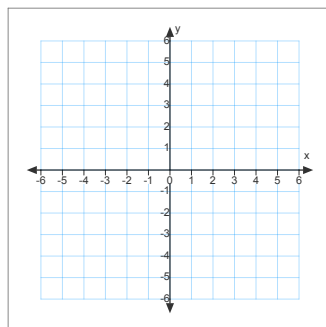
$$m = \frac{\text{change in } y}{\text{change in } x}$$

$$m = \frac{y_2 - y_1}{x_2 - x_1}$$

Now let's try it  
with the points A &  
B above!

Example 2: Given that a line has a slope of 4 and goes through the point B(3, -5), find the coordinates of another possible point on the line.

Method 1: Using a graph



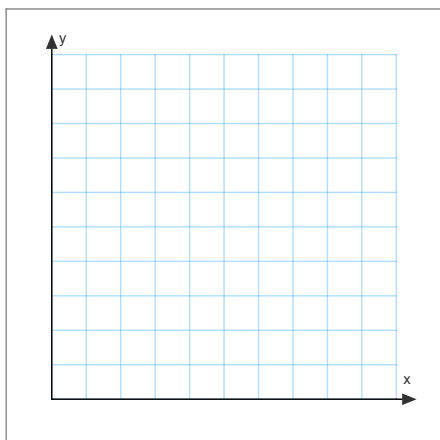
Method 2: Using the coordinate

run (x direction) is \_\_\_\_\_  
rise (y direction) is \_\_\_\_\_  
Add these to the x and y  
values of the given point.

( 3 , -5 )

Example 3: Determine the slope of the line given by:

Method 1: Using a graph



X	Y
0	50
5	70
10	90
15	110
20	130

Method 2: Using the table

$$m = \frac{\text{change in } y}{\text{change in } x}$$

Today's Practice Questions:

pg 259 - 263 # 1, 3, 5, 7, 9, 11, 13, 15, 19

## Attachments

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Slopes.ppt