



# MATH NEWS



Grade 5, Module 6, Topic A

## 5<sup>th</sup> Grade Math

Module 6: Problem Solving with the Coordinate Plane

### Math Parent Letter

This document is created to give parents and students an understanding of the math concepts found in Eureka Math (© 2013 Common Core, Inc.) that is also posted as the Engage New York material which is taught in the classroom. Grade 5 Module 6 of Eureka Math (Engage New York) covers Problem Solving with the Coordinate Plane. This newsletter will discuss Module 6, Topic A. In this topic students are introduced to the concept of a coordinate as describing the distance of a point on the line from zero. Students will also describe given points using coordinate pairs, and then use given coordinate pairs to plot points.

### Topic A: Coordinate Systems

#### Words to Know:

- coordinate plane
- coordinate
- coordinate pair or ordered pair
- origin
- midpoint
- x-axis
- y-axis

#### Things to Remember!

**Coordinate** – the distance from zero to the point

**Coordinate Plane** – The plane determined by a horizontal number line, called the x-axis, and vertical number line, called the y-axis, intersecting at a point called the origin. Each point in the coordinate plane can be specified by an ordered pair or coordinate pair of numbers.

**Coordinate Pair or Ordered Pair** – two numbers that are used to identify a point on a plane; written  $(x, y)$  where  $x$  represents a distance from 0 on the x-axis and  $y$  represents a distance from 0 on the y-axis

**Origin** – the point at which the x-axis and y-axis intersect, labeled  $(0,0)$  on the coordinate plane

**Midpoint** – the half-way point on a line segment

### OBJECTIVES OF TOPIC A

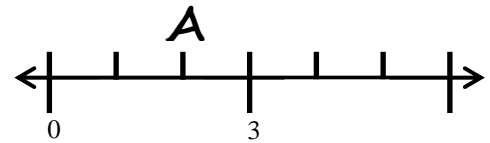
- Construct a coordinate system on a line.
- Construct a coordinate system on a plane.
- Name points using coordinate pairs, and use the coordinate pairs to plot points.
- Investigate patterns in vertical and horizontal lines, and interpret points on the plane as distance from the axes

## Focus Area– Topic A

Module 6: Problem Solving with the Coordinate Plane

**Directions:** Plot A so its distance from the origin is 2.

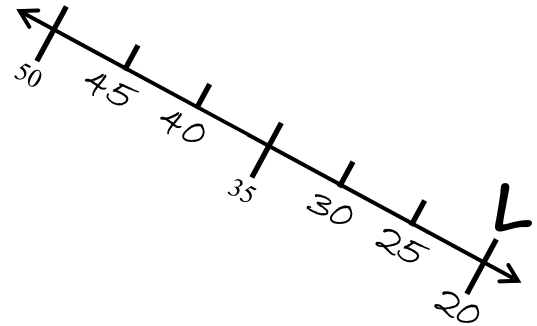
*You need to figure out the value of each tic mark that is not labeled. You can determine that the value of each is 1. Start at zero and move 2 units to the right. Plot your point above the correct tic mark.*



**Example 2:** Plot L so its distance from the origin is 20.

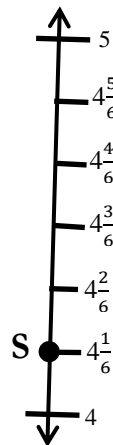
*First you need to figure out the value of each tic mark that is not labeled. From 35 to 50 there is a difference of 15. Divide the 15 by 3 (3 sections between 35 and 50) and you get 5. So each tic mark changes by 5.*

*Once you find the value of each tic mark you can then place the letter L on the line.*



\*\*\*\*\*

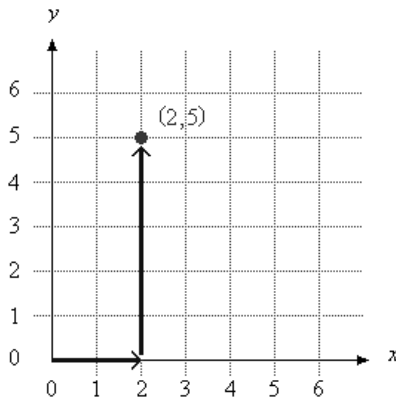
**Example 3:** What is the coordinate of point S?



First find the value of each tic mark. Since there are 6 spaces between 4 and 5, each tic mark would represent  $\frac{1}{6}$ .

When moving from the origin, the coordinate for point S is  $4\frac{1}{6}$ .

### Plotting a Coordinate Pair



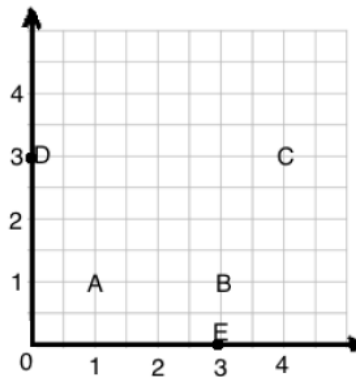
**Directions:** How would you plot the point (2,5) on the coordinate grid?

Start at the origin and move 2 units over on the x-axis.

Then move 5 units up on the y-axis.

(2, 5)  
 $\downarrow$   $\downarrow$   
 (x, y)

### Identifying a point on a Coordinate Grid



**Directions:** Find the coordinate pair for point B.

Start at the origin and move along the x-axis. You will move 6 spaces on the x-axis to get to 3 units.

(Each space equals  $\frac{1}{2}$  unit.)

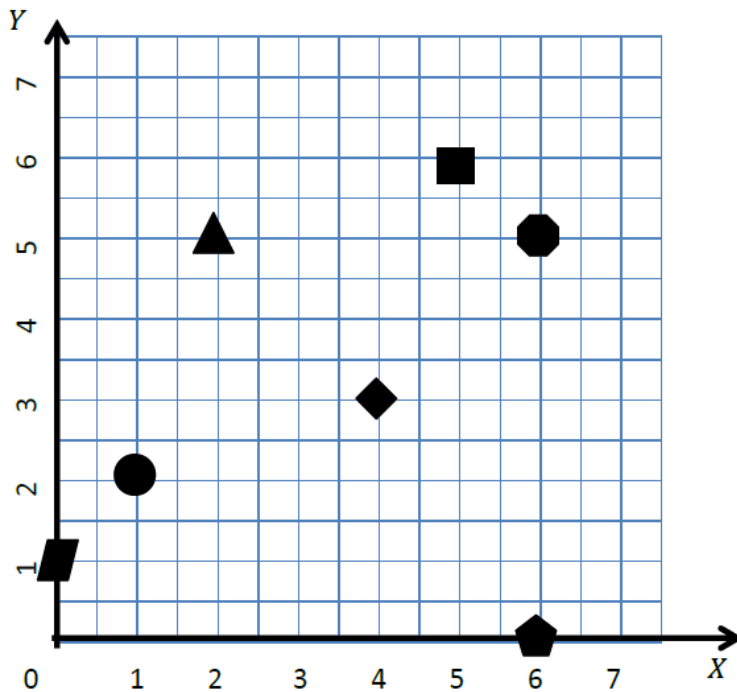
Then move up 2 spaces on the y-axis to get to the 1 unit.

(Each space equals  $\frac{1}{2}$  unit.)

Point B is at (3,1)



Use the coordinate plane to answer.



**Directions:** Tell the shape at each location.

a. What shape is 2 units from the y-axis and explain how you determined your answer?

I determined that each space is  $\frac{1}{2}$  unit from y-axis so I had to move 4 spaces to equal 2 units and the triangle is at that location.

b. Which shape has an x-coordinate of 0?

The parallelogram has an x-coordinate of 0.

c. Which shape is 4 units from the y-axis and 3 units from the x-axis?

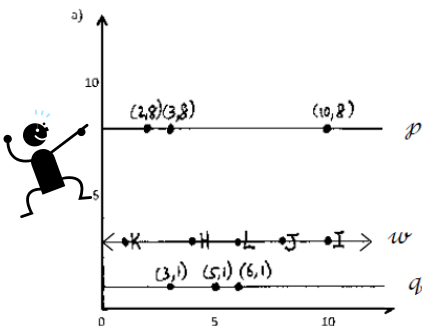
The rhombus has the coordinate pair of (4,3) since it is 4 units from the y-axis and 3 units from the x-axis.



### Patterns in Coordinate Pairs Horizontal lines

Look at line  $p$ , what do you notice about the 3 points and their coordinates?  
 They have different x coordinates but the y coordinates are all 8.

\*\*\*Any time the y-coordinates are the same in a set of coordinate pairs, the line created will always be horizontal.



### Patterns in Coordinate Pairs Vertical lines

Look at line  $n$ , what do you notice about the 3 points and their coordinates?  
 They have different y coordinates but the x coordinates are all 4.

\*\*\*Any time the x-coordinates are the same in a set of coordinate pairs, the line created will always be vertical.

