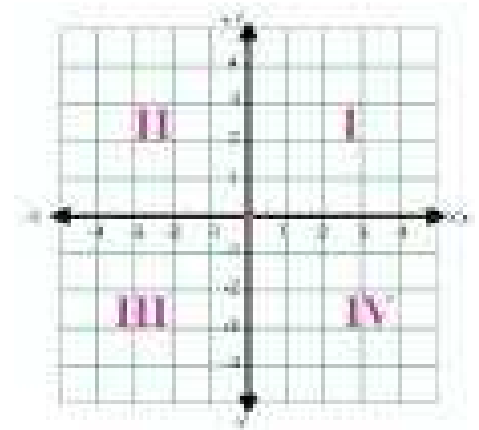


Algebra/Geometry Summer Institute 2006

Faculty Name: Monica O'Bryan

School: Davis Elementary, Greenwood, MS

Grade Level: Sixth



Can You Get Three in a Row?

1. Teaching Objective(s):

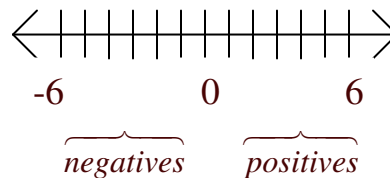
The students will:

- ⇒ Locate points on the coordinate grid
- ⇒ Identify points on the coordinate grid

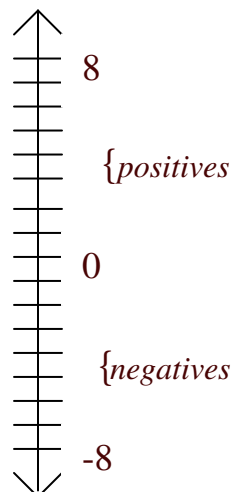
2. Instructional Activities:

Tell the students, “Today we will be learning about the coordinate plane. Let’s begin by referring to our number line(s). What kinds of numbers are located to the left/right of zero on the number line? What kinds of numbers are located above/below the zero on the number line?” Allow time for discussion of number lines.

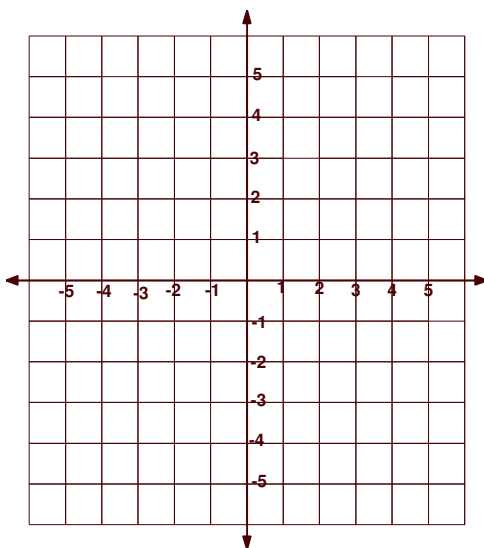
Horizontal number line:



Vertical number line:



Now, let's put these number lines together to form a coordinate plane.



Notes:

The horizontal number line is now called the horizontal axis or the x-axis, and the vertical number line is now called the vertical axis or the y-axis.

Have students demonstrate their understanding of horizontal and vertical by using their arms. (Ex: horizontal = hold arms straight out the left and right side, vertical = hold one arm straight up and one arm straight down to form a vertical line)

Group Activity:

The teacher will put students in groups of 5 to form 5 groups. Each group will need to come up with a symbol to represent their group. Allow them to be creative.

The teacher will put the set of integers ranging from -6 to 6 on the board. Give the following directions:

Say: "Students, we are going to play a game. As a group, you will decide on two numbers (pair) from the set to give me. They can be different or they can be the same. These two numbers are my directions as to where you would like your symbol placed on the coordinate plane. The object of the game is to get three of your team symbols in a row (tic-tac-toe). I am not going to tell you what I am doing. You must watch how I

move on the graph and figure out how to plot points. At the end of the game, you will be required to write a brief explanation of how to plot points. We will play several times.”

Notes for the teacher:

- Copy Handout 1 on a transparency.
- As the groups call out their pair of numbers, plot them on the coordinate plane.
- Be sure to always start at the origin.

At the end of the game:

Discuss the following definitions:

- Origin
- Ordered pair

Ask the following:

1. What did you notice about the way I placed your symbols on the coordinate plane? (Sample answer⇒The first number is assigned to the x-axis, and the second number is assigned to the y-axis. The first number tells you to either go left or right, and the second number tells you to either go up or down.)
2. The term for the pair of numbers is an ordered pair. Why is it referred to in that manner? (Sample answer⇒The order of the two numbers matters. An example of this is the fact that (3, 2) and (2, 3) do not represent the same point.)
3. Do you notice how the coordinate plane is divided into four sections? These sections are called quadrants. Talk about the prefix “qua” and give other examples of where it relates to the number four. (Ex: quartet, quarter, quadrilateral) Then label each quadrant (counterclockwise).

To check for understanding, call out ordered pairs and allow each student to individually plot a point on the coordinate plane on the board. Also, the teacher can plot several other points and ask students, “What ordered pair would get me to that point?”

3. Materials and References:

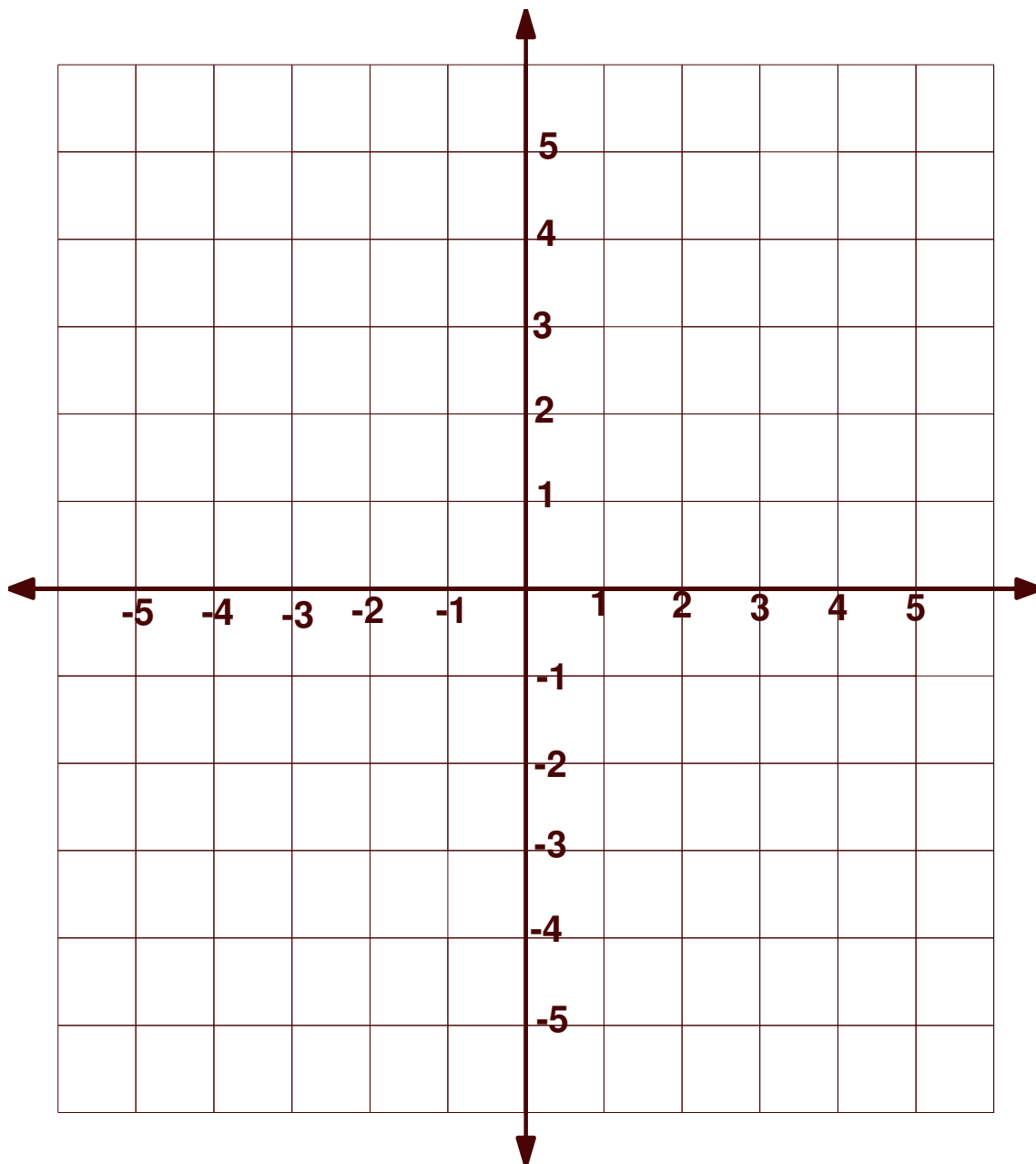
- ❖ Overhead projector
- ❖ Transparency
- ❖ Group symbols
- ❖ Reward for winning team
- ❖ White board
- ❖ Teacher-made assessment



4. Assessment

The teacher will ask questions to check for understanding.
The teacher will also give a daily grade to assess plotting points on the coordinate plane. (See Handout 2)

Handout 1
Game Board
(Copy on transparency)



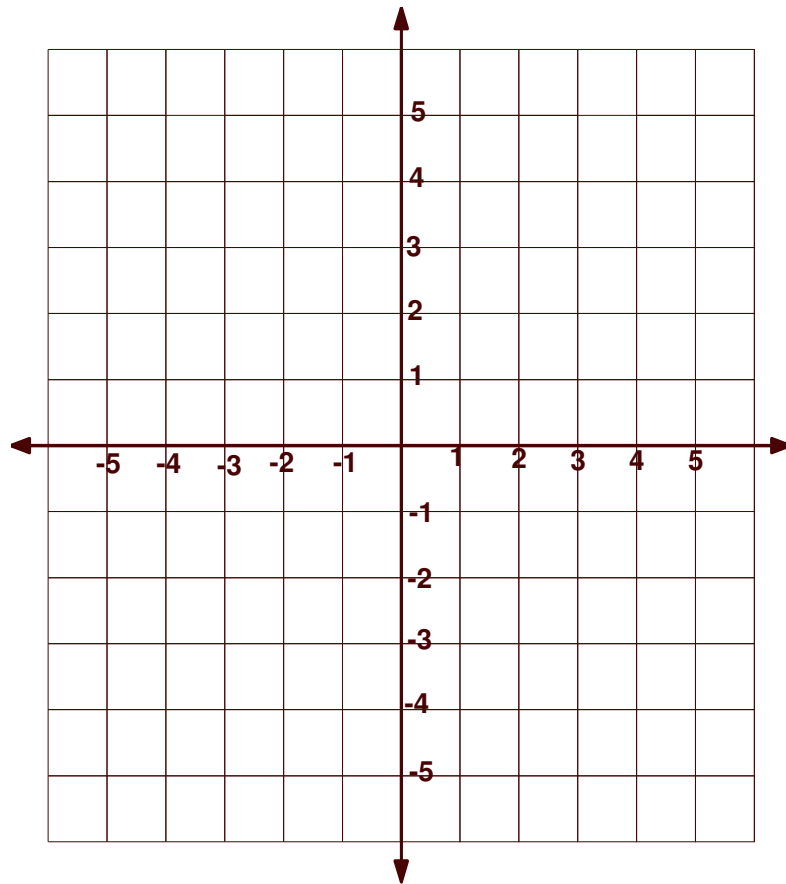
Handout 2

Coordinate Plane Quiz

Name _____

Date _____

Directions: Complete each problem to the best of your ability. Quiz is worth 100 points.



- I. Label the x-axis, y-axis, and quadrants 1, 2, 3, and 4 on the graph above.

- II. On the coordinate plane above, plot the following points:
A(1,3), B(-4, 3), C(0,0), D(2, -5), E(-5,-3)