



Dear Sixth Grade Families,

In Unit 3, students will work on the following sixth grade Common Core standards in the Number System (NS) and Geometry (G) domains.

6.NS.6	<p>Understand a rational number as a point on the number line. Extend number line diagrams and coordinate axes familiar from previous grades to represent points on the line and in the plane with negative number coordinates.</p> <p>a. Recognize opposite signs of numbers as indicating locations on opposite sides of 0 on the number line; recognize that the opposite of the opposite of a number is the number itself, e.g., $-(-3) = 3$, and that 0 is its own opposite.</p> <p>b. Understand signs of numbers in ordered pairs as indicating locations in quadrants of the coordinate plane; recognize that when two ordered pairs differ only by signs, the locations of the points are related by reflections across one or both axes.</p> <p>c. Find and position integers and other rational numbers on a horizontal or vertical number line diagram; find and position pairs of integers and other rational numbers on a coordinate plane.</p>
6.NS.8	<p>Solve real-world and mathematical problems by graphing points in all four quadrants of the coordinate plane. Include use of coordinates and absolute value to find distances between points with the same first coordinate or the same second coordinate.</p>
6.G.3	<p>Draw polygons in the coordinate plane given coordinates for the vertices; use coordinates to find the length of a side joining points with the same first coordinate or the same second coordinate. Apply these techniques in the context of solving real-world and mathematical problems.</p>

Unit 3 Concepts related to the Coordinate Plane:

- Ordered Pairs
- Quadrants
- Symmetry
- Rational Numbers
- Absolute Value
- Polygons

The distance between -4 and 4 is the sum of the absolute value of each distance from zero.

$$|-4| + |4| = 8$$

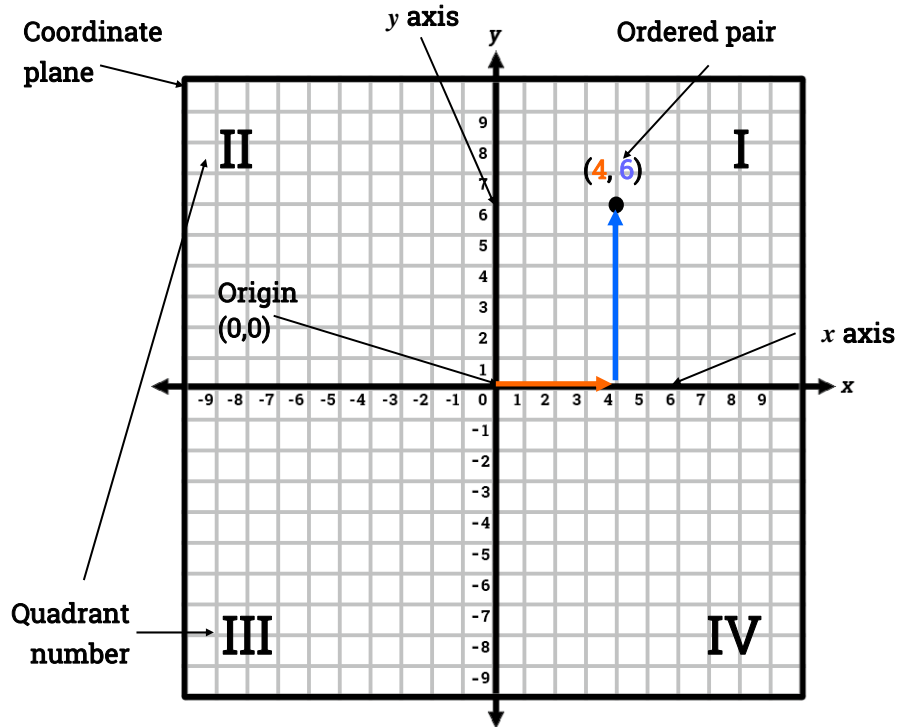
Need a review? Check out our lesson videos on-line!
swunmath.com/student-videos
 If you don't know the class's special name, ask your child's teacher.

We encourage you to talk with your child daily about what was learned in math class.
 Thank you for your support!



Unit 3 Vocabulary:

- Coordinate plane
- Ordered pair
- Origin
- Quadrant
- Symmetry
- Reflection
- Range
- Scale
- Absolute value
- Polygon
- Line segment
- Area
- Perimeter
- Grid map



Ask questions like these to help your child become a productive mathematical thinker:

- Construct a coordinate grid. Show me where $(8, -7)$ is.
 - How far is the x coordinate (8) from zero?
 - How far is the y coordinate (-7) from zero?
 - Which point would reflect $(8, -7)$ over the x axis? Which quadrant would that be in?
 - Which point would reflect $(8, -7)$ over the y axis? Which quadrant would that be in?
 - Which point would reflect $(8, -7)$ over both axes? Which quadrant would that be in?
 - If those four points were connected with line segments, what shape would it be? What would be the area and perimeter of that shape?
- How does your understanding of absolute value help you to find the distance between two points on a coordinate grid?
- Tell me what range and scale are.
- Give me an example of when it would be appropriate for the x and y axes to have two different scales.
- Can you represent fractional units on a coordinate grid? If so, how?
- If you knew the ordered pairs of the vertices of a right triangle, how could you find its area?
- When might we use a coordinate grid in real life?
- Could you design a game that uses coordinate grids?