Unit 7 Family Support Materials

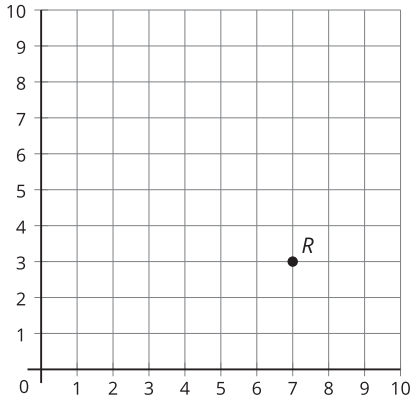
Shapes on the Coordinate Grid

In this unit, students are introduced to the structure of the coordinate grid, and the convention and notation of coordinates to name points. They classify triangles and quadrilaterals in a hierarchy, based on the properties of side length and angle measure. In their work with numerical patterns, students generate two different numerical patterns, and identify relationships between the corresponding terms in the patterns.

Section A: The Coordinate Grid

In this section, students explore the coordinate grid.

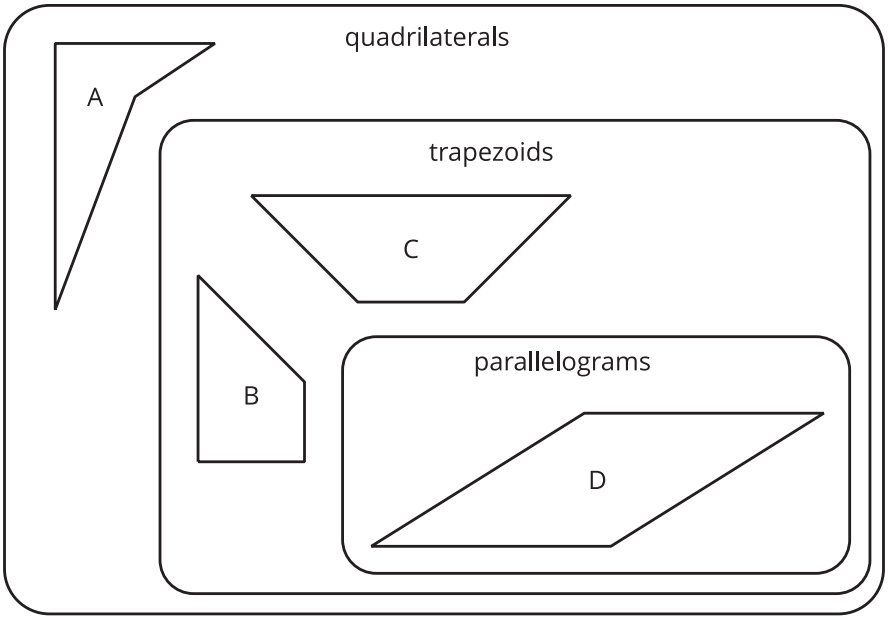
- They recognize that a point is located where two lines intersect.
- They describe points on the grid, based on the numbers on the horizontal and vertical axes.



For example, the point shown is located at coordinates $(7, 3)$. The first number in the coordinate pair, 7, is located on the horizontal axis, and the second number, 3, is located on the vertical axis.

Section B: The Hierarchy of Shapes

In this section, students learn more about shapes. They sort different types of triangles and quadrilaterals, based on what the shapes have in common. They classify the shapes into categories and subcategories. For example,



Section C: Numerical Patterns

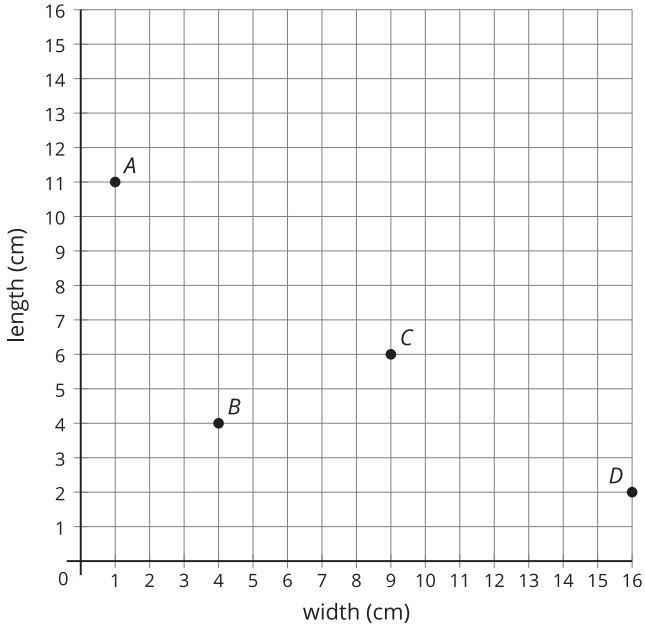
In this section, students generate patterns and explore relationships between the patterns. For example:

Rule 1: Start with 0. Add 4.
Generate a pattern for Rule 1.

Rule 2: Start with 0. Add 6.
Generate a pattern for Rule 2.

Compare your patterns. What relationships do you notice?

After students become familiar with generating patterns from rules and explaining relationships between the patterns, they plot pairs of numbers, from two patterns, on a coordinate grid. They also represent and solve problems by graphing points on the coordinate grid.



Try it at home!

Near the end of the unit, ask your fifth grader to solve the following problem:

This coordinate grid represents information about rectangles A–D. Based on the coordinate grid, what do we know about each of these rectangles?

Questions that may be helpful as they work:

- What strategy are you going to use to help you solve the problem?
- How can you show the rectangles represented by these points on the grid?
- Add another point to the grid that represents a different rectangle and describe the rectangle to me.

Solution:
We know the length and the width of each rectangle, in centimeters. We can use this information to find the perimeter and the area of each rectangle. We also can draw each rectangle on the grid.

Sample response:

- I looked at the horizontal and vertical axes to find what each point represents.
- I can draw each rectangle by making a line from the point straight down to the horizontal axis and from the point straight across to the vertical axis.
- A point anywhere on the grid that is not already marked, for example $(8, 9)$. This rectangle has a width of 8 centimeters and a length of 9 centimeters.