Tools and Topics

Inspiring Connections Course 2, Chapter 9

Spotlight On: Spatial Reasoning

Have you ever tried to move a large piece of furniture through a narrow doorway? Have you ever looked at a room and estimated how much paint you need to cover all the walls? Most likely, your brain was engaging in spatial reasoning, which is an important skill in the development of geometric thinking. The ability to visualize something in your mind is useful for making many decisions in life and is connected to many areas of geometry.

The Big Picture

Growing From

Classifying angles;
Classifying triangles;
Area of polygons

Working On

Angle relationships;
Constructing triangles;
Volume and surface area of prisms

Growing To

Angle pair relationships;
Triangle congruence theorems;
Volume and surface area of cones and spheres

Need Help?

Methods & Meanings boxes are included in the Mathematician's Notebook as reference.

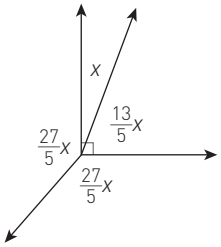
8.1.3: Mixed Numbers and Fractions Greater than 1
9.1.2: Angles
9.1.3: Angle Relationships
9.2.2: Triangle Inequality
9.3.3: Measurement in Different Dimensions
9.3.4: Volume of a Prism

Current Topics

In this chapter, students will solve for missing angle measures using information about the angle relationships in a given diagram. They will also construct triangles by hand and with technology, and solve real-world problems involving volume and surface area.

Angle Relationships (Section 9.1)

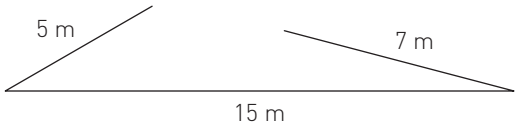
In this section, students will use what they know about angle relationships, expressions, and equations to solve problems like the one shown. In the visual, the angle labeled x and the angle labeled $\frac{13}{5}x$ are complementary angles, meaning they sum to 90°. Solving the equation shown, the measure of x is equal to 25°.



$\frac{13}{5}x + x = 90°$

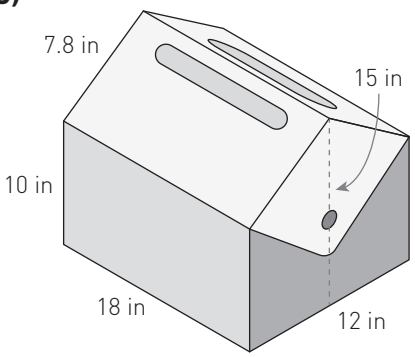
Triangle Creation (Section 9.2)

In this section, students develop some ideas about triangles. They explore the conditions where sets of angles or sides may form one, many, or no triangles. This lays the groundwork for triangle similarity and congruence, the Angle Sum Theorem, and the Right Triangle Theorem in the next course, and eventually geometric proofs.



Volume and Surface Area (Section 9.3)

This section combines the geometric concepts of area, surface area, and volume. Students build on their investigations of two-dimensional cross sections of prisms and pyramids from Chapter 2. They calculate the area of these cross sections and solve mathematical and real-world problems involving the surface area and volume of three-dimensional objects.



Try This at Home!

Find a packaged food item in your cupboard and ask your student how many of that item they would need to fill the whole cupboard.