The Common Denominator
A Family Math Newsletter
Mathematics 6 GT Unit 7: Multiplication in Geometry

Unit at a Glance:

Suggested Length of Unit: 14 days (45 minutes), 7 days (90 minutes)

- The Area Model for Multiplication
- Multiplication of Fractions
- The Distributive Property
- The Area of a Triangle
- The Area of a Trapezoid
- Circles
- The Size-Change Model for Multiplication

Resources

- Textbook Resource: Viktora, Steven S, et al. Transition Mathematics. Wright Group/McGraw-Hill, 2008, pp. 428-483.
- Homework Help/Online book (teacher-provided code needed): Online Textbook Portal

Exploring Chapter 7

This chapter is a link between the concrete geometry activities involving area and volume, which students should have studied in earlier grades, with the formal study of area and volume that should occur in high school.

Lessons 7-1 through 7-3 provide the arithmetic and algebraic basis for the chapter. Lesson 7-1 reviews the area formulas for a rectangle and a right triangle and the basic properties of multiplication, material that students should have encountered in previous years. The new learning is the direct connection made with multiplication. For the ancient Greeks area was the main motivation for viewing multiplication as an important operation. Lesson 7-2, covering the multiplication of fractions, is also a review, though students may not have previously seen the rules for multiplication expressed algebraically. Generalizing the properties is the new learning and continues the development of students reading and writing mathematical notation. Lesson 7-3 introduces the Distributive Properties of Multiplication over Addition and Subtraction through area models and application. It then applies these properties to the collection of like terms and the multiplication of a whole number and a mixed number.

Lessons 7-4 to 7-6 deal with the area of the most common plane figures. In Lesson 7-4, the area of a right triangle is used to obtain the area of any triangle. Then, in Lesson 7-5, the area of a triangle is used to obtain the area of any trapezoid and its special case, the parallelogram. Students will use a practical application of the Distributive Property to discover the formula for the area of a trapezoid. In Lesson 7-6, the area of a parallelogram is used to obtain a formula for the area of a circle.

Lesson 7-7 introduces a different kind of application of multiplication that is also basic in geometry: the changing in size, or scaling, of a figure.

Quote

"Mathematics is not about numbers, equations, computations, or algorithms; it is about understanding." -William Paul Thurston