

Parent Guide for Student Success

For use with Chapter 8

Chapter Overview One way that you can help your student succeed in Chapter 8 is by discussing the lesson goals in the chart below. When a lesson is completed, ask your student to interpret the lesson goals for you and to explain how the mathematics of the lesson relates to one of the key applications listed in the chart.

Lesson Title	Lesson Goals	Key Applications
8.1: Ratio and Proportion	Find and simplify the ratio of two numbers. Use proportions to solve real-life problems.	<ul style="list-style-type: none"> • Painting • Planets' Gravity • Gulliver's Travels
8.2: Problem Solving in Geometry with Proportions	Use properties of proportions. Use proportions to solve real-life problems.	<ul style="list-style-type: none"> • Titanic Model • Blueprints • Lolo Trail
8.3: Similar Polygons	Identify similar polygons. Use similar polygons to solve real-life problems.	<ul style="list-style-type: none"> • Poster Design • TV Screens • Total Eclipse
8.4: Similar Triangles	Identify similar triangles. Use similar triangles in real-life problems.	<ul style="list-style-type: none"> • Tourmaline Crystal • Aerial Photography • The Great Pyramid
8.5: Proving Triangles are Similar	Use similarity theorems to prove that two triangles are similar. Use similar triangles to solve real-life problems.	<ul style="list-style-type: none"> • Scale Drawings • Rock Climbing • Unisphere
8.6: Proportions and Similar Triangles	Use proportionality theorems to calculate segment lengths. Use proportionality theorems to solve real-life problems.	<ul style="list-style-type: none"> • Insulating an Attic Room • Lot Prices • New York City Map
8.7: Dilations	Identify dilations. Use properties of dilations to create real-life perspective drawings.	<ul style="list-style-type: none"> • Shadow Puppets • Enlarging Photos • Perspective Drawing

Study Strategy

Connect to the Real World is the study strategy featured in Chapter 8 (see page 456). Have your student make a list of the main topics in the chapter. Then, work together to give a real-world example for each topic. Your student may remember how to work problems related to the topic by remembering the real-world example.

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Key Ideas Your student can demonstrate understanding of key concepts by working through the following exercises with you.

Lesson	Exercise
8.1	Find the ratio of 2.5 feet to 1 yard in simplest form.
8.2	Company A manufactures a jet that has 410 seats and costs \$6567 an hour to operate. Company B manufactures a jet that costs \$4885 an hour to operate. How many seats should the jet have in order for it to have the same rate per seat as the Company A jet?
8.3	A formal, rectangular garden is 20 meters wide and 25 meters long. You want to make a similar garden in your yard that is 8 meters wide. How much edging do you need to enclose your garden?
8.4	A right triangle with a 15-centimeter hypotenuse has a 50° angle. Another right triangle has a 10-centimeter hypotenuse and a 50° angle. How do you know the triangles are similar?
8.5	A cliff casts a 36-foot shadow at the same time you cast a 2-foot shadow. You are standing level with the bottom of the cliff. If you are 5 feet tall, what is the height of the cliff?
8.6	You have a piece of property with the back line perpendicular to the sides. The front of the lot along the road is 132 meters long and on a slant. You divide your lot into three lots to sell, by making lines parallel to the original sides. The backs of the new lots are 35 m, 42 m, and 33 m wide. The 35-meter lot has 42 meters of road frontage. Find the road frontage of each of the other two lots.
8.7	Find the coordinates of the vertices of a dilation of the triangle with vertices $A(-2, 0)$, $B(1, 3)$, and $C(2, -1)$, with the origin as the center and a scale factor of 2.

Home Involvement Activity

You Will Need: A yardstick, cardboard, scissors, tape

Directions: Find the overall dimensions of the outside of your home. You may need to use indirect measurement. Make a scale model of your home out of cardboard. First choose a scale factor. Then make a table with the actual dimensions and the dimensions of your scale model. Use the table to construct the actual model.

Answers: 8.1: $\frac{6}{5}$ 8.2: about 305 seats 8.3: 36 m 8.4: Angle-Angle Similarity Postulate 8.5: 90 ft 8.6: 50.4 m and 39.6 m 8.7: $A(-4, 0)$, $B(2, 6)$, $C(4, -2)$

ANSWERS