Lesson 6 Problem-Solving Practice

Changes in Dimensions

PACKING Use the table for Exercises 1–3. The table shows the volumes of three types of packing boxes offered by a moving company.

Volume of Packing Boxes, in³	
Type A	5,000
Type B	7,500
Type C	10,000

1. Taso needs a box that is similar to Type A but that is larger by a scale factor of 2.5. What would be the volume of this box? **78,125 in³**

2. Kristina needs a box that is similar to Type C but is smaller by a factor of $\frac{1}{2}$. What would be the volume of this box? **1,250 in³**

3. The moving company used to offer Type D, which was similar in shape to Type B, but was larger by a scale factor of 3. What was the volume of Type D? **202,500 in³**

4. **DECORATION** Odell had a cone-shaped decoration on her dresser. It has a volume of 6,800 cubic millimeters. What is the volume of a similar cone that is $\frac{1}{5}$ this size? **54.4 mm³**

5. **BIRD CAGE** Buan built a bird cage with a surface area of 540 square inches. Her sister Sirib built a bird cage with a similar shape, and it is larger than Buan's bird cage by a scale factor of 2.25. What is the surface area of Sirib's bird cage? Round to the nearest tenth. **2,733.8 in²**

6. **DETERGENT** For a limited time, a brand of detergent is being sold in a larger size for the same cost as the original size. The two boxes are similar in shape. The surface area of the original box is 1,200 cubic centimeters and the surface area of the larger box is 2,028 cubic centimeters. How much greater is the height of the larger box than the original box? **1.3 times greater**

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