Lesson 18 Practice Problems

1. A cube with side length 5 centimeters has a density of 3 grams per cubic centimeter. What is its mass?

   (From Unit 5, Lesson 17.)

2. Rectangular prism A measures 5 inches by 5 inches by 6 inches. Rectangular prism B measures 2 inches by 4 inches by 6 inches.

   a. Before doing any calculations, predict which prism has greater surface area to volume ratio.

   b. Calculate the surface area, volume, and surface area to volume ratio for each prism.

   (From Unit 5, Lesson 16.)

3. A right cone has a base with radius 4 units. The volume of the cone is 16π cubic units. What is the length of a segment drawn from the apex to the edge of the circular base?

   (From Unit 5, Lesson 15.)

4. A right pyramid has a square base with sides of length 10 units. Each segment connecting the apex to a midpoint of a side of the base has length 13 units. What is the volume of the pyramid?

    A. 1300 cubic units

    B. 1200 cubic units

    C. $\frac{1300}{3}$ cubic units

    D. 400 cubic units

(From Unit 5, Lesson 15.)

5. A solid can be constructed with 2 squares and 4 congruent, non-rectangular parallelograms. What is the name of this solid?

    A. cube

    B. right rectangular prism

    C. right square prism

    D. oblique square prism

(From Unit 5, Lesson 12.)

6. Diego is deciding which of 2 juice containers he should buy. One container is in the shape of a cylinder with radius 2.5 centimeters and height 10.5 centimeters. The second container is in the shape of a rectangular prism. The prism also has height 10.5 centimeters. Its length is 4 centimeters and its width is 6 centimeters.

Which juice container has the larger volume?

(From Unit 5, Lesson 10.)

7. A parallelogram has an area of 1 square centimeter. Write an equation where y is the scale factor required for a dilation of the parallelogram to have an area of x square units. Sketch a graph representing the equation.
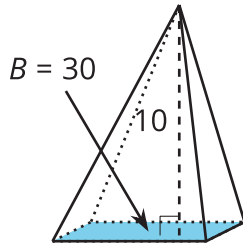
(From Unit 5, Lesson 5.)

8. Suppose several solids are divided into thin slices, all in the same direction. For each set of slices, decide what kind of solid they came from.

   a. a set of similar rectangles, decreasing in size to a single point, ordered from greatest in size to smallest

   b. a set of congruent triangles

   c. a set of congruent squares

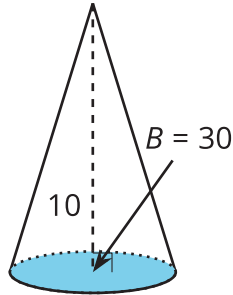   d. a set of circles, decreasing in size to a single point, ordered from greatest in size to smallest

(From Unit 5, Lesson 2.)

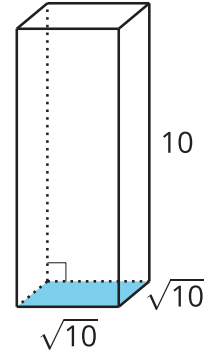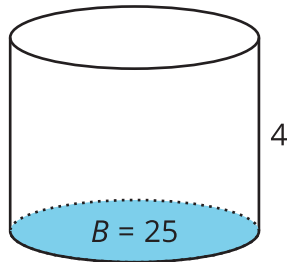9. Four solids on the list have the same volume. Select these solids.

Solid A **Solid B** **Solid C**

$B = 30$
10

$B = 30$
10

10
$\sqrt{10}$
$\sqrt{10}$

Solid D **Solid E**

4

$B = 25$

$B = 25$
4
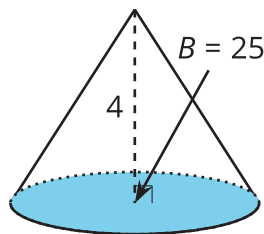
A. Solid A

B. Solid B

C. Solid C

D. Solid D

E. Solid E

(From Unit 5, Lesson 13.)