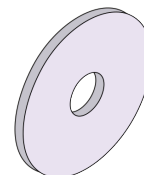# Lesson 17 Practice Problems

1. The washer in the image has an inner diameter of $\frac{1}{4}$ inch. The outer diameter measures $\frac{3}{4}$ inch, and the washer is $\frac{1}{4}$ inch thick. The density of the metal the washers are made of is 0.285 pounds per cubic inch.

   How much do 5 washers weigh, in pounds? Round your answer to the nearest hundredth.

2. Assume that a cell is a sphere with radius 10^{-3} or 0.001 centimeter, and that a cell's density is 1.1 grams per cubic centimeter.

   a. Koalas weigh 6 kilograms on average. How many cells are in the average koala?

   b. Hippos weigh 1,400 kilograms on average. How many cells are in the average hippo?

3. The density of water is 1 gram per cm^3. An object floats in water if its density is less than water's density, and it sinks if its density is greater than water's. Will a toy in the shape of a rectangular prism that is 1 centimeter by 2 centimeter by 2 centimeter with mass 3 grams sink or float? Explain your reasoning.

4. A cube and a sphere both have volume 512 cubic units. Which solid has a greater surface area? Explain your reasoning.

(From Unit 5, Lesson 16.)

5. Give the dimensions of 2 solids with equal surface area and different volume.

(From Unit 5, Lesson 16.)

6. A right cone has a base with diameter 10 units. The volume of the cone is 100π cubic units. What is the length of a segment drawn from the apex to the edge of the circular base?

   A. 5 units

   B. 12 units

   C. 13 units

   D. 15 units

(From Unit 5, Lesson 15.)

7. A pyramid has a height of 4 inches and a volume of 40 cubic inches. Select **all** figures that could be the base for this pyramid.

    A. a 5 inch by 2 inch rectangle

    B. a 3 inch by 10 inch rectangle

    C. a triangle with height 10 inches and base 3 inches

    D. a right triangle with one side 5 inches and the hypotenuse 13 inches

    E. a heart with area 30 square inches

(From Unit 5, Lesson 14.)

8. Select **all** solids for which the formula $V = Bh$ applies.

    A. a triangular prism

    B. a triangular pyramid

    C. a square pyramid

    D. a rectangular prism

    E. a cone

    F. a cylinder

(From Unit 5, Lesson 9.)

9. Two distinct lines, ℓ and m, are each perpendicular to the same line n. A fourth distinct line, k, is also perpendicular to line n. Does line k intersect line ℓ or line m? Explain how you know.

(From Unit 1, Lesson 6.)