# Lesson 10.4:   Volume Problems

In this lesson you will:
- use the volume formulas you have learned to solve problems

Volume has applications in science, medicine, engineering, and construction. For example, a chemist needs to accurately measure the volume of reactive substances. A doctor may need to calculate the volume of a cancerous tumor based on a body scan. Engineers and construction personnel need to determine the volume of building supplies such as concrete or asphalt. The volume of the rooms in a completed building will ultimately determine the size of mechanical devices such as air conditioning units.

You have learned volume formulas for prisms, cylinders, pyramids, and cones. In this lesson, you will use these formulas to solve problems.

•Example 1: The volume of this right triangular prism is 1440 cm^3.
Find the height of the prism.
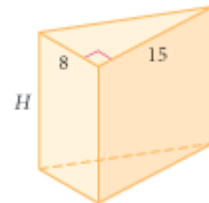
•Example 2: The volume of this sector of a right cylinder is 2814 m^3.
Find the radius of the base of the cylinder to the nearest meter.
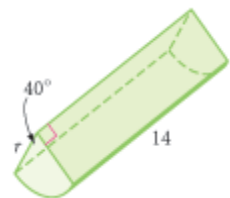
●Example 3: A swimming pool is in the shape of the prism shown at right. How many gallons of water can the pool hold? (A cubic foot of water is about 7.5 gallons.)

30 ft

14 ft

6 ft

16 ft
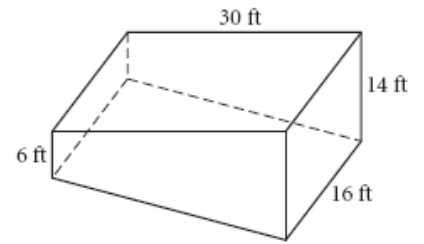
●Example 4: A sealed rectangular container 5 cm by 14 cm by 20 cm is sitting on its smallest face. It is filled with water up to 5 cm from the top. How many centimeters from the bottom will the water level reach if the container is placed on its largest face?

5 cm

20 cm

15 cm

5 cm

14 cm
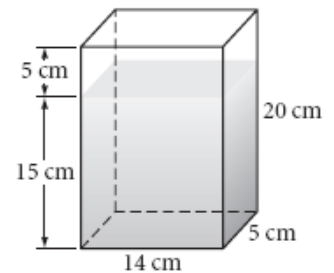
●Example 5: Find the volume of a rectangular prism with dimensions that are twice those of another rectangular prism with volume 120 cm^3.

$\Rightarrow$**ASSIGNMENT**: _____