# Word Problem Practice

## Volume of Prisms

1. **PACKAGING** A cereal box has a length of 8 inches, a width of $1\frac{3}{4}$ inches, and a height of $12\frac{1}{8}$ inches. What is the volume of the cereal box?

   \[ V = L \times W \times H = 8 \times 1.75 \times 12.125 = 169.75 \text{ in}^3 \]

2. **FOOD STORAGE** Nara wants to determine how much ice it will take to fill her cooler. If the cooler has a length of 22 inches, a width of 12 inches, and a height of $10\frac{1}{2}$ inches, how much ice will her cooler hold?

   \[ V = L \times W \times H = 22 \times 12 \times 10.5 = 2772 \text{ in}^3 \]

3. **TRANSPORTATION** The cargo-carrying part of Billy's truck has a length of 8.3 meters, a width of 3 meters, and a height of 4.2 meters. What is the maximum volume of sand that Billy's truck can carry?

   \[ V = L \times W \times H = 8.3 \times 3 \times 4.2 = 104.58 \text{ m}^3 \]

4. **PLUMBING** Alexia's bathroom has a tub in the shape of a rectangular prism with a length of 1.5 meters, a width of 0.5 meter, and a height of 0.4 meter. How many cubic feet of water can it hold?

   \[ V = L \times W \times H = 1.5 \times 0.5 \times 0.4 = 0.3 \text{ m}^3 = 10.78 \text{ ft}^3 \]

5. **PACKAGING** A box of tissues has a length of 11.2 centimeters, a width of 11.2 centimeters, and a height of 13 centimeters. What is the volume of the tissue box?

   \[ V = L \times W \times H = 11.2 \times 11.2 \times 13 = 1630.72 \text{ cm}^3 \]

6. **GEOMETRY** A pentagonal prism is a prism that has bases that are pentagons. Use \( V = Bh \) where \( B \) is the area of the base, to find the volume of the pentagonal prism below.

   \[ B = 26.3 \text{ cm}^2 \]

\[ V = 26.3 \times 4.5 \times 11.8 \approx 1183.5 \text{ cm}^3 \]
# Word Problem Practice

## Volume of Cylinders

1. **WATER STORAGE** A cylindrical water tank has a diameter of 5.3 meters and a height of 9 meters. What is the maximum volume that the water tank can hold? Round to the nearest tenth.

   \[ V = \pi r^2 h \]

   \[ r = \frac{d}{2} = \frac{5.3}{2} = 2.65 \text{ m} \]

   \[ V = \pi (2.65)^2 (9) \approx 198.56 \text{ m}^3 \]

2. **PACKAGING** A can of corn has a diameter of 6.6 centimeters and a height of 9.9 centimeters. How much corn can the can hold? Round to the nearest tenth.

   \[ V = \pi r^2 h \]

   \[ r = \frac{d}{2} = \frac{6.6}{2} = 3.3 \text{ cm} \]

   \[ V = \pi (3.3)^2 (9.9) \approx 338.7 \text{ cm}^3 \]

3. **CONTAINERS** Tionna wants to determine the maximum capacity of a cylindrical bucket that has a radius of 6 inches and a height of 12 inches. What is the capacity of Tionna's bucket? Round to the nearest tenth.

   \[ V = \pi r^2 h \]

   \[ r = 6 \text{ in}, \ h = 12 \text{ in} \]

   \[ V = \pi (6)^2 (12) \approx 1130.4 \text{ in}^3 \]

4. **DESIGN** Rodolfo is designing a new, cylindrical drinking glass. If the glass has a diameter of 8 centimeters and a height of 12.8 centimeters, what is its volume? Round to the nearest tenth.

   \[ V = \pi r^2 h \]

   \[ r = \frac{d}{2} = \frac{8}{2} = 4 \text{ cm} \]

   \[ V = \pi (4)^2 (12.8) \approx 643.4 \text{ cm}^3 \]

5. **PAINT** A can of paint is 15 centimeters high and has a diameter of 13.6 cm. What is the volume of the can? Round to the nearest tenth.

   \[ V = \pi r^2 h \]

   \[ r = \frac{d}{2} = \frac{13.6}{2} = 6.8 \text{ cm} \]

   \[ V = \pi (6.8)^2 (15) \approx 1168.2 \text{ cm}^3 \]

6. **SPICES** A spice manufacturer uses a cylindrical dispenser like the one shown. Find the volume of the dispenser to the nearest tenth.

   \[ V = \pi r^2 h \]

   \[ r = 1.7 \text{ in}, \ h = 3 \text{ in} \]

   \[ V = \pi (1.7)^2 (3) \approx 30.8 \text{ in}^3 \]