NAME _____ DATE _____ PERIOD _____

Enrich

Volume and Liquid Capacity

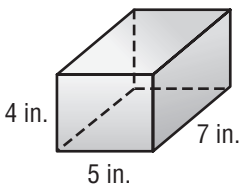
The volume of a three-dimensional figure is the amount of *space* it contains. Volume is measured in cubic units—cubic meters, cubic inches, and so on.

The liquid capacity of a container is the amount of *liquid* it can hold. Liquid capacity generally is measured in units like liters, milliliters, cups, pints, quarts, and gallons.

The chart at the right shows the relationship between volume and liquid capacity. If a container were shaped like the rectangular prism, this is how you would find its liquid capacity.

Volume and Liquid Capacity	
Metric	
$1\ cm^3 = 1\ mL$	
$1\ m^3 = 1{,}000\ L$	
Customary	
$1\ in^3 \approx 0.544$ fl oz	
$1\ ft^3 \approx 7.481$ gal	

Volume	**Liquid Capacity**
$V = \ell wh$	$1\ in^3 \approx 0.544$ fl oz
$V = 7 \times 5 \times 4$	$140\ in^3 \approx (140 \times 0.544)$ fl oz
$V = 140$	$140\ in^3 \approx 76.16$ fl oz



So the liquid capacity of the container is about 76 fluid ounces.

For Exercises 1–4, find the liquid capacity of a container shaped like a rectangular prism with the given dimensions. If necessary, round to the nearest whole number.

1. length, 8 cm
width, 4 cm
height, 6 cm

2. length, 7 ft
width, 2 ft
height, 3 ft

3. length, 4 m
width, 2 m
height, 5 m

4. length, 5 in.
width, 1 in.
height, 3 in.

5. An aquarium is 36 inches long, 18 inches wide, and 18 inches tall. It is filled with water to a height of 12 inches. How many gallons of water are in the aquarium? (Round to the nearest gallon.)

6. **CHALLENGE** How many cubic inches of space are occupied by one quart of water? Round to the nearest whole number.