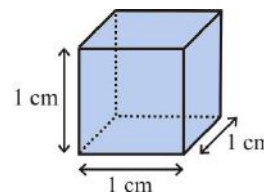


# Converting Between Units of Volume

The picture shows a cube with 1-cm sides. Its volume is, obviously, 1 cubic centimeter.

We can calculate its volume also in cubic millimeters. Each side measures 10 mm. Therefore, the volume is  $10 \text{ mm} \times 10 \text{ mm} \times 10 \text{ mm} = 1,000 \text{ mm}^3$ .

So,  $1 \text{ cm}^3 = 1,000 \text{ mm}^3$ .

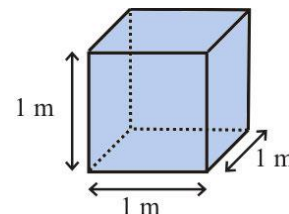


1. This cube has 1-meter sides, so its volume is \_\_\_\_\_  $\text{m}^3$ .

In cubic decimeters, its volume is \_\_\_\_\_  $\text{dm} \times$  \_\_\_\_\_  $\text{dm} \times$  \_\_\_\_\_  $\text{dm}$   
= \_\_\_\_\_  $\text{dm}^3$ .

In cubic centimeters, its volume is \_\_\_\_\_  $\text{cm} \times$  \_\_\_\_\_  $\text{cm} \times$  \_\_\_\_\_  $\text{cm}$   
= \_\_\_\_\_  $\text{cm}^3$ .

So,  $1 \text{ m}^3 =$  \_\_\_\_\_  $\text{dm}^3 =$  \_\_\_\_\_  $\text{cm}^3$ .



Remember how easy it is to relate liters and metric cubic units?

$$1 \text{ ml} = 1 \text{ cm}^3$$

It follows that 1 liter = 1,000 ml = 1,000  $\text{cm}^3$ .

2. A rectangular juice carton measures  $7 \text{ cm} \times 11 \text{ cm} \times 12 \text{ cm}$ .  
Calculate its volume in milliliters and liters.

3. In exercise #1 you calculated 1 cubic meter in cubic centimeters.  
Now find how many *liters* there are in one cubic meter.

4. A swimming pool is in the shape of a rectangular prism.  
It is 12.5 m long, 6 m wide, and 2 m deep. It is  $7/8$  full of water.

a. Calculate the volume of *water* (not of the pool) in cubic meters and in liters.

b. It rains 15 mm of rain. How many liters of water does that add to the pool?