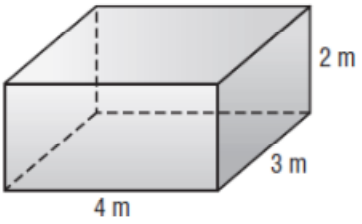
NAME _____ DATE _____ PERIOD _____

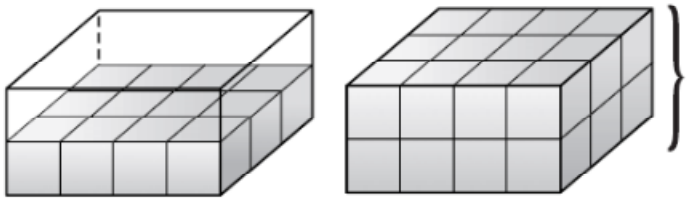
11-9 Study Guide and Intervention

Volume of Prisms

The **volume** of a three-dimensional figure is the measure of space occupied by it. It is measured in cubic units such as cubic centimeters (cm^3) or cubic inches (in^3). The volume of the figure at the right can be shown using cubes.



The bottom layer, or base, has $4 \cdot 3$ or 12 cubes. →



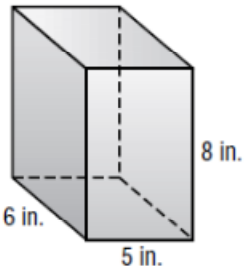
There are two layers.

It takes $12 \cdot 2$ or 24 cubes to fill the box. So, the volume of the box is 24 cubic meters.

A **rectangular prism** is a three-dimensional figure that has two parallel and congruent sides, or bases, that are rectangles. To find the volume of a rectangular prism, multiply the area of the base and the height, or find the product of the length ℓ, the width w, and the height h.

$V = Bh$ or $V = \ell wh$

Example **Find the volume of the rectangular prism.**



$V = \ell wh$ Volume of a rectangular prism

$V = 5 \cdot 6 \cdot 8$ Replace ℓ with 5, w with 6, and h with 8.

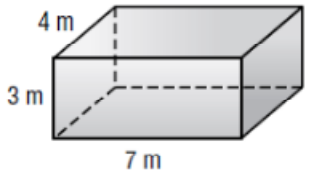
$V = 240$ Multiply.

The volume is 240 cubic inches.

Exercises

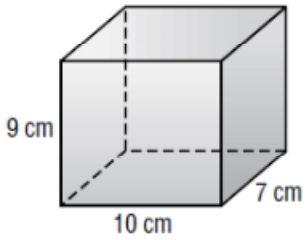
Find the volume of each rectangular prism. Round to the nearest tenth if necessary.

1.



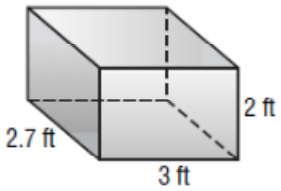
84 m^3

2.



630 cm^3

3.



16.2 ft^3

Lesson 11–9