Math Virtual Learning

Geometry

Volume of Prisms

April 28, 2020

Geometry

Lesson: April 28, 2020

Objective/Learning Target:

Students will calculate the volume of Prisms.

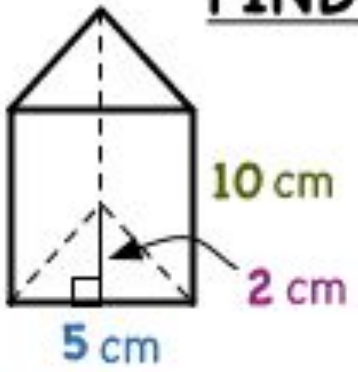
Warm-Up:

Watch Video: Volume of Prisms

Read Article: Volume of Prisms

Example:

FIND THE VOLUME



$b = 5$ cm

h_1 = triangle height = 2 cm

h_2 = prism height = 10 cm

$V = Bh_2$

$B = \frac{1}{2}bh_1$

$V = \left(\frac{1}{2}bh_1\right)h_2$

$V = \left(\frac{1}{2}(5 \cdot 2)\right)10$

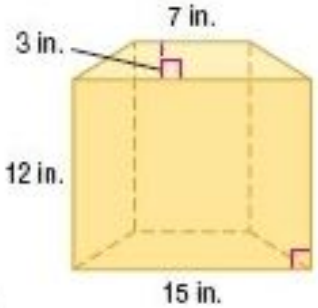
$V = \left(\frac{1}{2}(10)\right)10$

$V = \left(\frac{10}{2}\right)10$

$V = (5)(10)$

$V = 50 \text{ cm}^3$

Example:



SOLUTION:

The volume V of a prism is $V = Bh$, where B is the area of a base and h is the height of the prism.

$$V = Bh$$
$$= \frac{1}{2}(7+15)(3)\cdot 12$$
$$= 33\cdot 12$$
$$= 396 \text{ in}^3$$

Example:

MULTIPLE CHOICE A rectangular lap pool measures 80 feet long by 20 feet wide. If it needs to be filled to 4 feet deep and each cubic foot holds 7.5 gallons, how many gallons will it take to fill the lap pool?

A 4000
B 6400
C 30,000
D 48,000

SOLUTION:

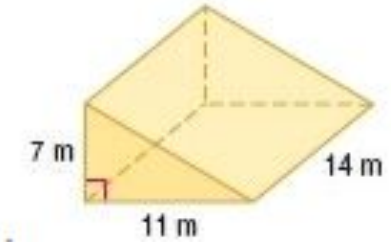
$$V = Bh$$
$$= 20(80) \cdot 4$$
$$= 6400$$

Each cubic foot holds 7.5 gallons of water. So, the amount of water required to fill the pool is 6400(7.5) = 48,000.

Therefore, the correct choice is D.

Practice:

1) Find the Volume of the following Prism:



2) **PLANTER** A planter is in the shape of a rectangular prism 18 inches long, $14\frac{1}{2}$ inches deep, and 12 inches high. What is the volume of potting soil in the planter if the planter is filled to $1\frac{1}{2}$ inches below the top?

Answer Key:

Once you have completed the problems, check your answers here.

1) *SOLUTION:*

The base is a triangle with a base length of 11 m and the corresponding height of 7 m. The height of the prism is 14 m.

$$V = \frac{1}{2}(7 \cdot 11 \cdot 14)$$
$$= 539 \text{ m}^3$$

2) *SOLUTION:*

The planter is to be filled $1\frac{1}{2}$ inches below the top, so

$$h = 12 - 1\frac{1}{2} = 10\frac{1}{2} \text{ in.}$$

$$V = Bh$$
$$= (18)(14.5) \cdot 10.5$$
$$= 2740.5 \text{ in}^3$$

Additional Practice:

Extra Practice with Answers