Math Virtual Learning

Grade 7
Volume of Prisms

May 18, 2020

Grade 7/Volume of Prisms
Lesson: May 18, 2020

Objective/Learning Target:
Find the volume of rectangular prisms.

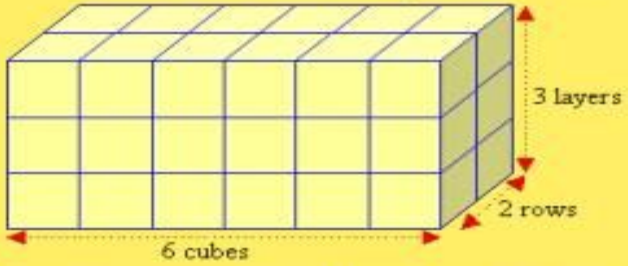
Let's Get Started:
Watch Video: Volume of Rectangular Prisms

What is a Rectangular Prism?

- A Solid or 3-D Dimensional figure
- Has length, width and height.
- Each **face** is a rectangle.
- Each corner is called a **vertex** (vertices)
- Each line segment is called an **edge**

What is Volume?

1) Space Inside
2) Amount that would fit inside or fill a prism.

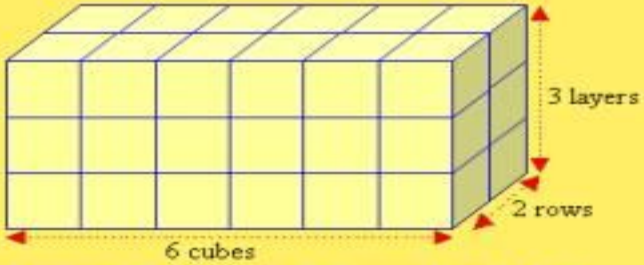


6 cubes are on the bottom row.

There are two rows or 12 cubes per layer (2 x 6)

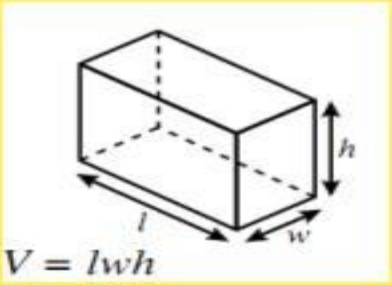
There are 3 layers or 36 cubes (12 x 3)

Formula for Volume of a Prism



V = length x width x height

V = l x w x h



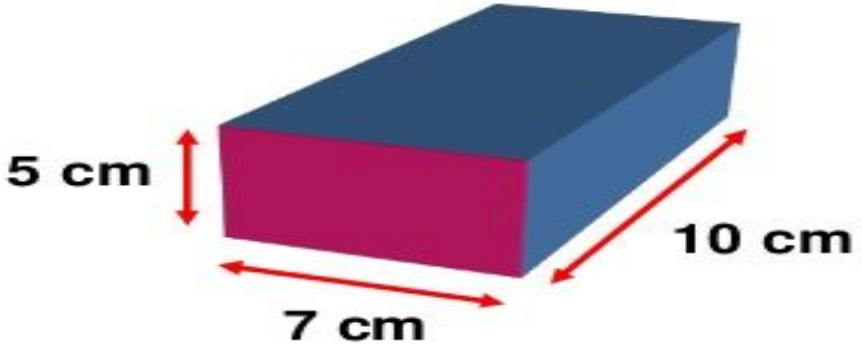
For the prism above V = 6 x 2 x 3 = 36cm^3

Practice:

Volume of Rectangular Prism

V = Area x Height

V = L x W x H



V = L x W x H

V =

answer

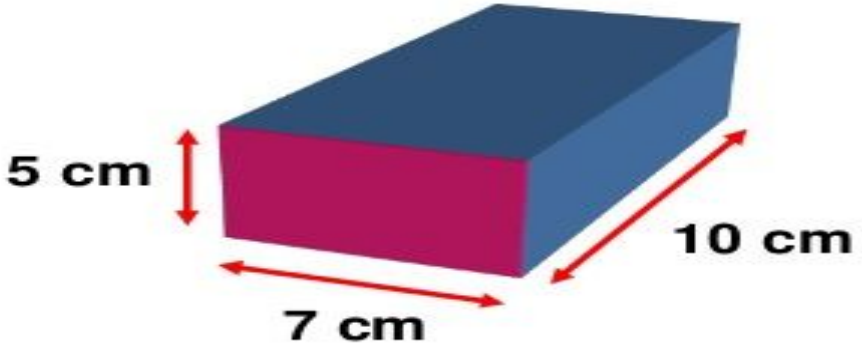
V =

Practice Answer:

Volume of Rectangular Prism

$V = \text{Area} \times \text{Height}$

$V = L \times W \times H$



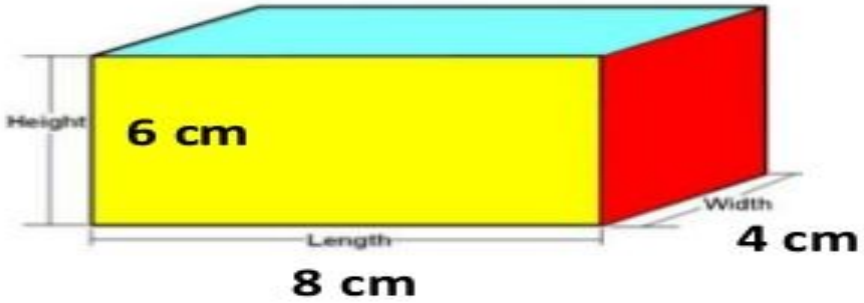
$V = L \times W \times H$

$V = 10 \times 7 \times 5$

$V = 350\ cm^3$ ✓

More Practice!

Rectangular Prism - FORMULA



$$V = L \times W \times H$$
or
$$V = LWH$$

$$V = L \times W \times H$$

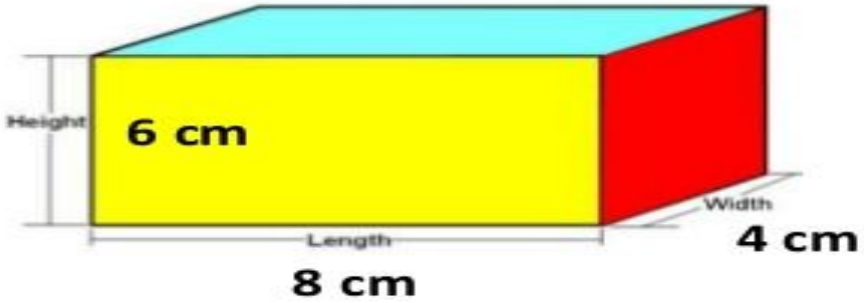
$$V =$$

answer

$$V =$$

Practice Answer:

Rectangular Prism - FORMULA



$$V = L \times W \times H$$
or
$$V = LWH$$

$$V = L \times W \times H$$

$$V = 8 \times 4 \times 6$$

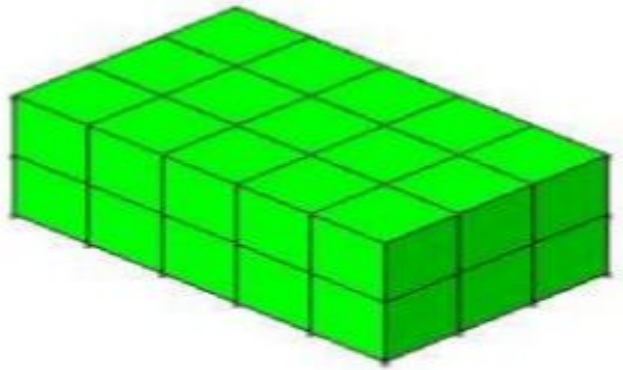
$$V = 192 \text{ cm}^3$$ ✓

Want More Practice? Here You Go!!!

Two Layer Prism

How many cubes does this Prism hold?

Rather than count all the cubes, we can find the Volume of this prism by counting how many cubes long, wide, and tall the prism is, and then Multiplying.



V = answer

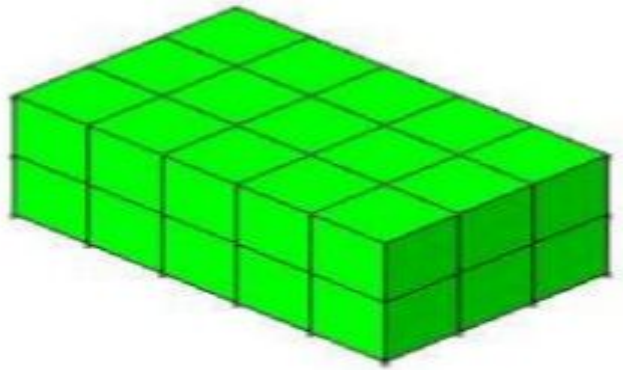
There are ? cubes in the prism, which means the volume of the Rectangular Prism is ? cubic units.

Practice Answer

Two Layer Prism

How many cubes does this Prism hold?

Rather than count all the cubes, we can find the Volume of this prism by counting how many cubes long, wide, and tall the prism is, and then Multiplying.



$V = 5 \times 3 \times 2 = 30$

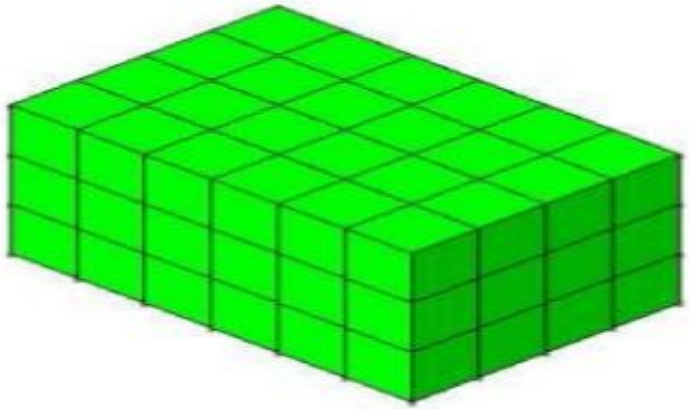
There are 30 cubes in the prism, which means the volume of the Rectangular Prism is 30 cubic units.

Want Even More Practice? Here You Go!!!

Three Layer Prism

How many cubes does this Prism hold?

Rather than count all the cubes, we can find the Volume of this prism by counting how many cubes long, wide, and tall the prism is, and then Multiplying.



V = answer

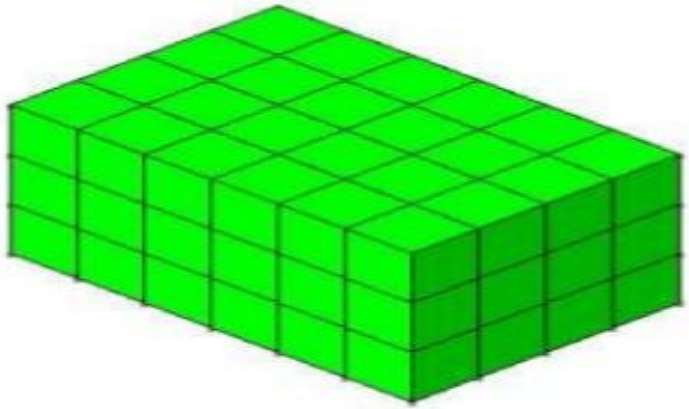
There are ? cubes in the prism, which means the volume of the Rectangular Prism is ? cubic units.

Practice Answer

Three Layer Prism

How many cubes does this Prism hold?

Rather than count all the cubes, we can find the Volume of this prism by counting how many cubes long, wide, and tall the prism is, and then Multiplying.



$V = 6 \times 4 \times 3 = 72$

There are 72 cubes in the prism, which means the volume of the Rectangular Prism is 72 cubic units.

For those of you who like to ask "when will I ever use this in real life"...

Volume in the Real World

It can be seen in the above photo that we have a rectangular prism shaped Trench, containing a cylindrical shaped Pipe. Cement is delivered in cubic meters, and the workers would need to have calculated how much cement needed to be delivered for the job.

In this calculation they would need to have done Rectanglar Trench Volume minus the Volume of the cylinder Pipe.

If they did not do this calculation carefully and correctly, then they would either have too much cement, (which is expensive to dispose of), or not enough cement which could mean that they would not be able to complete the job on time.

Image Source: http://alkispapadopoulos.com

Additional Practice:

Click on the links below to get additional practice and to check your understanding!

Khan Academy - Practice

IXL - Practice

Quizizz - Practice

Love to find the volume of rectangular prisms, I do!

Additional Practice: Challenge

Changing a measurement

What is the volume of a rectangular prism if its length is 5 inches, its width is 2inches, and its height is 3 inches?

V =
V =
V= ?

Now, triple the width of the prism. How many times greater is the volume of the new prism than the volume of the original prism?

Original width = ? **New width** = ?

V =
V =
V= ?

Compare: ? ***.....new volume is*** ? ***times greater!***

Additional Practice: Challenge

Changing a measurement

What is the volume of a rectangular prism if its length is 5 inches, its width is 2inches, and its height is 3 inches?

$V = lwh$
$V = 5x2x3 = 30$
$V = 30\ in^3$

Now, triple the width of the prism. How many times greater is the volume of the new prism than the volume of the original prism?

Original width = 2 **New width** = 3x2 = 6

$V = lwh$
$V = 5x6x3 = 90$
$V = 90\ in^3$

Compare: 30 and 90……..new volume is 3 times greater!