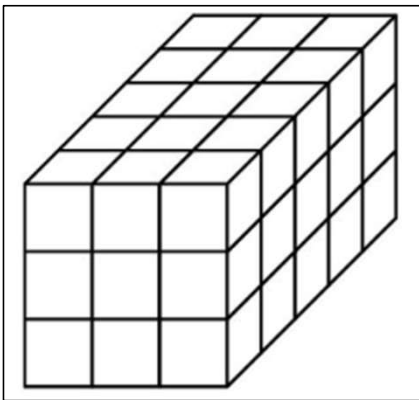


Topic C Quiz Prep (Lessons 16 – 21)

Item 1: Volume of Right Rectangular Prisms



In this topic we learned several ways to determine the volume of a right rectangular prism. Two formulas that were introduced were:

$$V = \text{length} \times \text{width} \times \text{height}$$

$$V = \text{base} \times \text{height}$$

Using the right rectangular prism shown here, we simply count the cubes that are visible on each face to get the dimensions.

$$V = 3 \times 5 \times 3$$

Or we may decompose the prism into layers. This prism has 15 cubes per layers stacked.

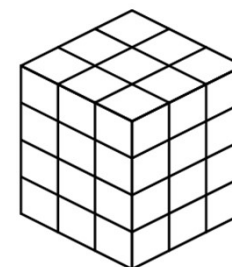
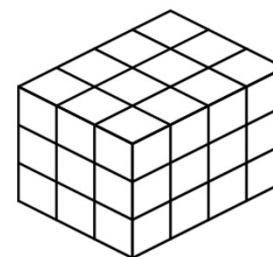
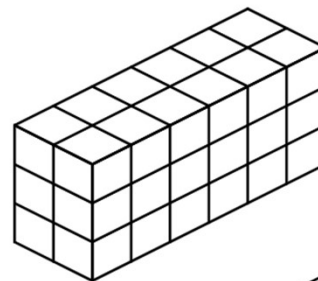
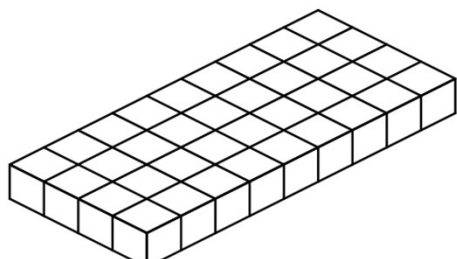
$$V = 15 \times 3$$

*The volume of this prism is **45 cubic units**.*

Item 2: Different Configurations, Same Volume

In this topic we also learned that right rectangular prisms can look different yet still have the same volume.

*The prisms shown here look very different but all of them represent a **volume of 36 cubic units**.*



Topic C Quiz Prep (Lessons 16 – 21)

Item 3: Volume of Right Rectangular Prisms

The formulas below represent a property of all right rectangular prisms. That means, even if a prism is not shown to you but you are given the dimensions, that you can find the volume of a prism.

$V = \text{length} \times \text{width} \times \text{height}$

$V = \text{base} \times \text{height}$

Length = 12 centimeters
Width = 8 centimeters
Height = 4 centimeters

$\text{Volume} = L \times W \times H$
 $\text{Volume} = 12 \times 8 \times 4$
 $\text{Volume} = 384 \text{ cubic centimeters}$

Length = 12 centimeters
Width = 8 centimeters
Height = 4 centimeters

$\text{Volume} = \text{Base} \times \text{Height}$
 $\text{Volume} = 96 \times 4$
 $\text{Volume} = 384 \text{ cubic centimeters}$

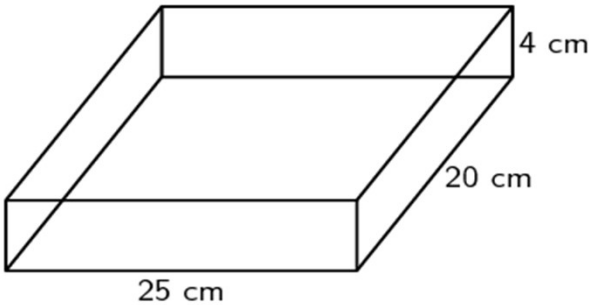
Item 4: Packing a Right Rectangular Prism

In this topic, recall the videos showing how packing a right rectangular prism could be done by finding the base layer and then multiplying by the height.

The large prism shown here has a base of 25 x 20. The small prism could be packed 5 cubes by 5 cubes for a base layer of 25 cubes.

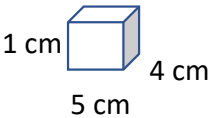
The height of 4 cm shows us it would be 4 layers high. $25 \times 4 = 100$ cubes.

Another way would be to find the total volume of the large prism $25 \times 20 \times 4 = 2,000$ cubic cm and divide that by the volume of the small prism $4 \times 5 \times 1 = 20$ cubic cm. $2,000 \div 20 = 100$ cubes.



$\text{Volume} = L \times W \times H$
 $\text{Volume} = 20 \times 25 \times 4$
 $\text{Volume} = 2,000 \text{ cubic centimeters}$

This prism has a base of 25 cm by 20 cm.



$\text{Volume} = L \times W \times H$
 $\text{Volume} = 4 \times 5 \times 1$
 $\text{Volume} = 20 \text{ cubic centimeters}$