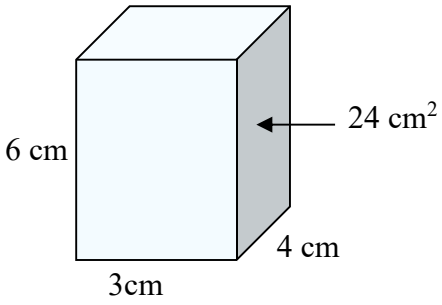
Date: KEY

7.2 Notes: Volume of a Prism



Jodi found the volume of the rectangular prism shown. What would she say it was?

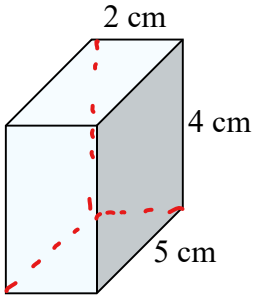
$V = A_b h$
$= (24\text{ cm}^2)(3\text{ cm})$
$V = 72\text{ cm}^3$

Jodi had to calculate the area of the base. How do you think she might have found it?

$A_b = \ell w$
$= (6)(4)$

$A_b = 24\text{ cm}^2$

You can find the volume of a rectangular prism if you know length, width and height.



Choose one side to be the base. Find its area.

BOTTOM: $A_b = \ell w$
$= (5)(2)$
$= 10\text{ cm}^2$

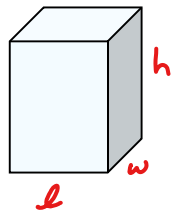
Find the volume of this rectangular prism.

$V = A_b h$
$= (10)(4)$

$V = 40\text{ cm}^2$

The volume can also be found with one step: $V = \ell w h$
$= (5)(2)(4)$
$V = 40\text{ cm}^2$

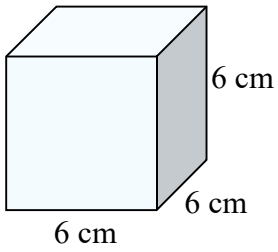
Summary



The volume of a rectangular prism is:

$V = \ell w h$

What happens if all the sides of a rectangular prism are the same?

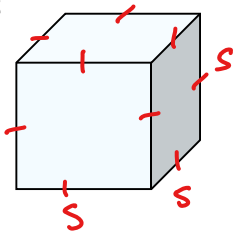


$V = lwh$

$= s \cdot s \cdot s$

$V = s^3$

Summary:



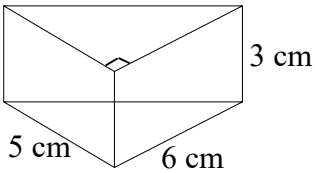
The volume of a cube is:

$$V = s^3$$

How many different ways can you cut a rectangular prism into halves?

How does the volume of the triangular prisms compare to the rectangular prisms?

It's half the volume.

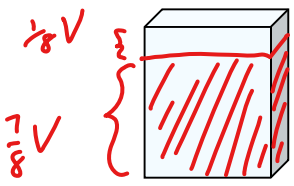


Find the volume of the triangular prism shown

$$V = \frac{lwh}{2}$$

$$= \frac{(6)(5)(3)}{2}$$

$$V = 45\ cm^3$$



Fried Banana Breakfast cereal comes in boxes that measure 20cm (w) wide, 30cm (h) tall and 5cm (l) thick. If they only come seven-eighths full, what volume of cereal does it contain?

Seven-eighths of the volume

$= \frac{7}{8} \times V$

$= \frac{7}{8} \times lwh$

$= \frac{7}{8} \times (5)(20)(30)$

$V = 2625\ cm^3$