DO NOW

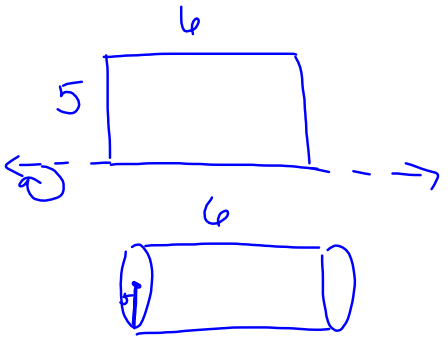
Which three-dimensional figure will result when a rectangle 6 inches long and 5 inches wide is continuously rotated about the longer side?

1) a rectangular prism with a length of 6 inches, width of 6 inches, and height of 5 inches

2) a rectangular prism with a length of 6 inches, width of 5 inches, and height of 5 inches

3) a cylinder with a radius of 5 inches and a height of 6 inches

4) a cylinder with a radius of 6 inches and a height of 5 inches



Dec 10-8:02 AM

Volume of a Solid

The volume of a solid is a measure of how much it will hold - measured in cubic units (cm^3, ft^3, in^3, etc.)

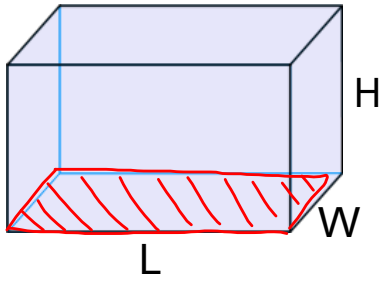
The volume of any prism is the area of one base (B) times the height of the prism

General Prisms $V = Bh$

B → area of the base

Dec 10-8:06 AM

Volume of a Rectangular Prism



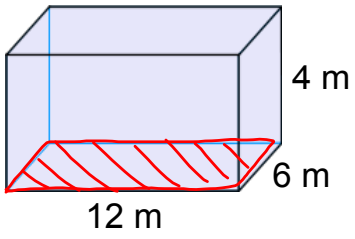
V = Area of the base • height

V = $l \cdot w \cdot h$

Dec 10-8:14 AM

Volume of a Rectangular Prism

Find the volume of the rectangular prism below:



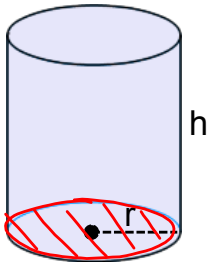
$V = B \cdot h$

$V = (12 \cdot 6)(4)$

$V = 288 \text{ m}^3$

Dec 10-8:20 AM

Volume of a Right Cylinder



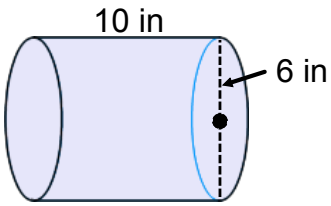
V = Area of the base · height

V = $\pi r^2 h$

Dec 10-8:21 AM

Volume of a Right Cylinder

Find the volume of the cylinder below in terms of π



$V = \pi r^2 h$

$V = \pi (3)^2 (10)$

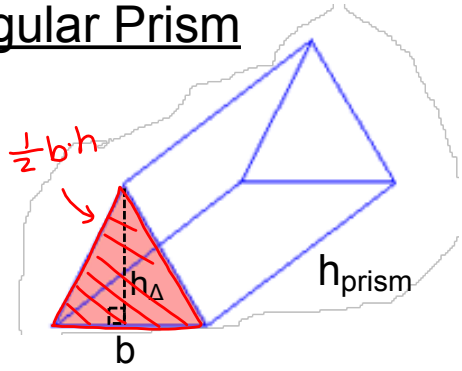
$V = 90\pi \text{ in}^3$

Dec 10-8:23 AM

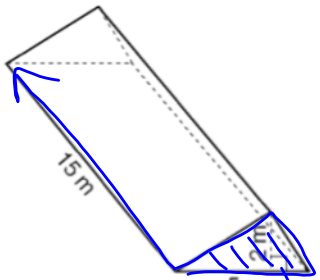
Volume of a Triangular Prism

$V = B \cdot h$

$V = \frac{1}{2}(b \cdot h_\Delta) \cdot h_{prism}$



EX: Find the volume of the triangular prism below



$V = Bh$

$V = (5)(15)$

$V = 75\ m^3$

$\frac{1}{2}(5)(2)$

May 10-10:09 AM

Mike buys his ice cream packed in a rectangular prism-shaped carton, while Carol buys hers in a cylindrical-shaped carton. The dimensions of the prism are 5 inches by 3.5 inches by 7 inches. The cylinder has a diameter of 5 inches and a height of 7 inches. Which container holds more ice cream? Justify your answer.

$V = Bh$

$V = (5)(3.5)(7)$

$V = 122.5\ in^3$

$V = \pi r^2 h$

$V = \pi(2.5)^2(7)$

$V = 137.44\ldots$

Cylinder

Determine, to the nearest tenth of a cubic inch, how much more ice cream the larger container holds.

Jan 2-4:55 AM

A soup can is in the shape of a cylinder. The can has avolume of 108π cm^3 and a diameter of 6 cm. Find the height of the can.

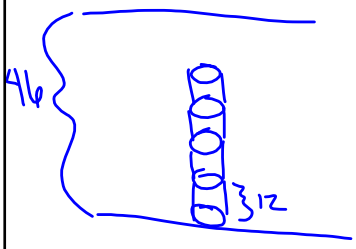
$V = \pi r^2 h$

$108\pi = \pi (3)^2 h$

$\frac{108\pi}{9\pi} = \frac{9\pi \cdot h}{9\pi}$

$h = 12$ cm

Determine the maximum number of soup cans that can be stacked on their base between two shelves if the distance between the shelves is exactly 46 cm. Explain your answer.



$\frac{46}{12} = 3.83...$

3 cans

Jan 2-4:58 AM