

Pick up a blue unit
overview from the
front.

Warm Up:

1. What is volume?
2. What's larger - volume or area?

Learning Goal: Today I will learn how to find the volume of a cylinder and prism.

Success Criteria: I am able to identify the base, calculate base area and volume.

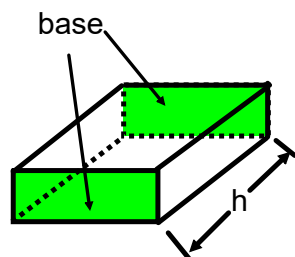
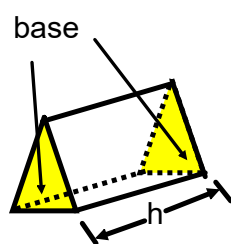
11-4 Volume of Cylinders and Prisms

Burrito Books

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Volume of a Prism

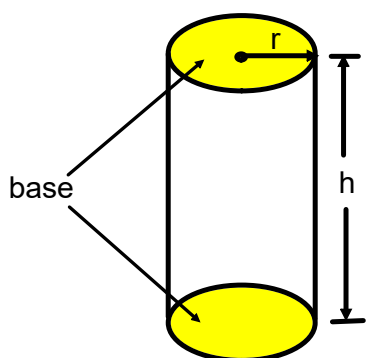
- 2 congruent, parallel faces or bases
- named using base shape

Volume

$$V = B \bullet h$$

B = area of the base

h = height (distance between bases)



Volume of a Cylinder

- 2 congruent, parallel bases that are circles

Volume

$$V = B \cdot h = \pi r^2 h$$

$$V = \pi r^2 h$$

r = radius of circle

h = height (distance between bases)

B = area of base

Find the volume of the prism.

Basic Formula:

$$A = Bh$$

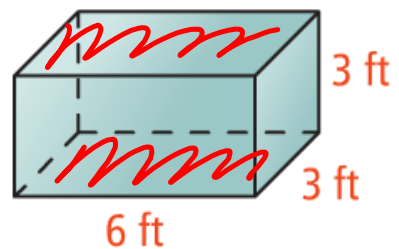
Specific Formula:

$$A = bh \cdot h$$

Numbers Substituted:

$$A = 6 \cdot 3 \cdot 3$$

$$A = 54 \text{ ft}^3$$



Find the volume of the prism.

Basic Formula:

$$V = Bh$$

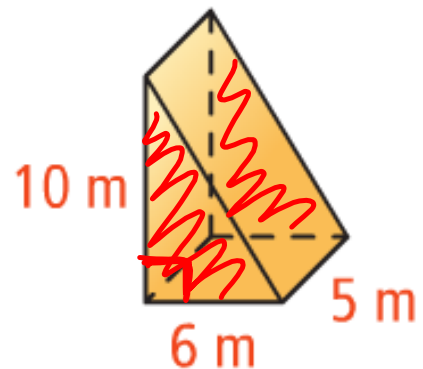
Specific Formula:

$$V = \frac{bh}{2} \cdot h$$

Numbers Substituted:

$$V = \frac{6 \cdot 10}{2} \cdot 5$$

$$V = 150 \text{ m}^3$$



The water surface is 2.5 in. from the top of the cylindrical water tank at the right.
About how much water is in the tank?

Basic Formula:

$$V = Bh$$

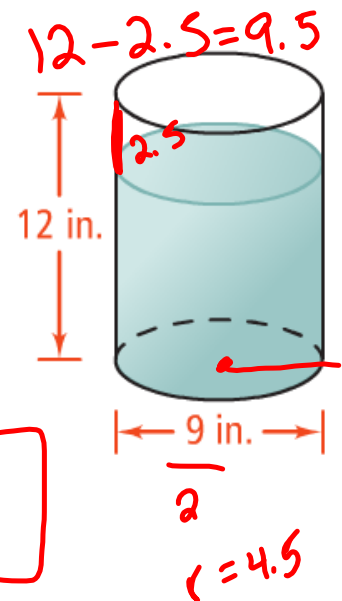
Specific Formula:

$$V = \pi r^2 h$$

Numbers Substituted:

$$V = (3.14)(4.5)^2 (9.5)$$

$$V = 604.4 \text{ in}^3$$



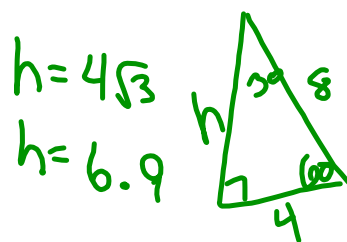
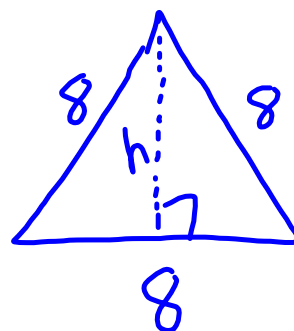
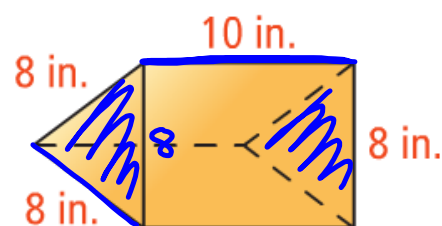
Find the volume of the prism.

Basic Formula: $V = Bh$

Specific Formula: $V = \frac{bh}{2} \cdot h$

Numbers Substituted: $V = \frac{8 \cdot 6.9}{2} \cdot 10$

$$V = 276 \text{ in}^3$$

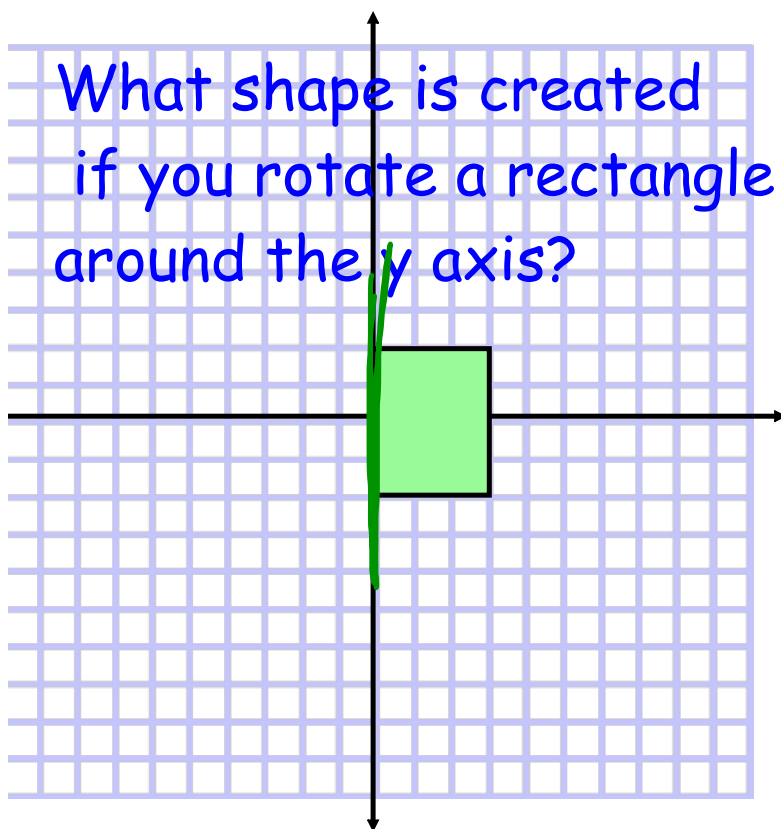


Algebra The volume of a cylinder is $135\pi \text{ cm}^3$. The height of the cylinder is 15 cm. What is the radius of a base of the cylinder?

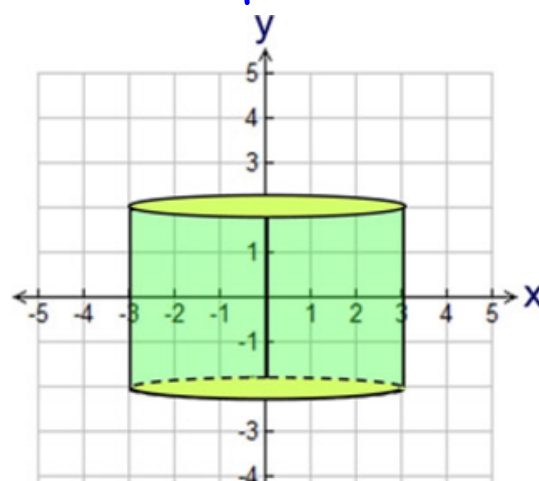
$$\begin{aligned} V &= \pi r^2 h \\ 135\pi &= \pi r^2 15 \\ \frac{135\pi}{\pi} &= \frac{\pi r^2 15}{\pi} \\ \frac{135}{15} &= \frac{r^2 15}{15} \\ r &= 3 \end{aligned}$$

$\sqrt{9} = \sqrt{r^2}$

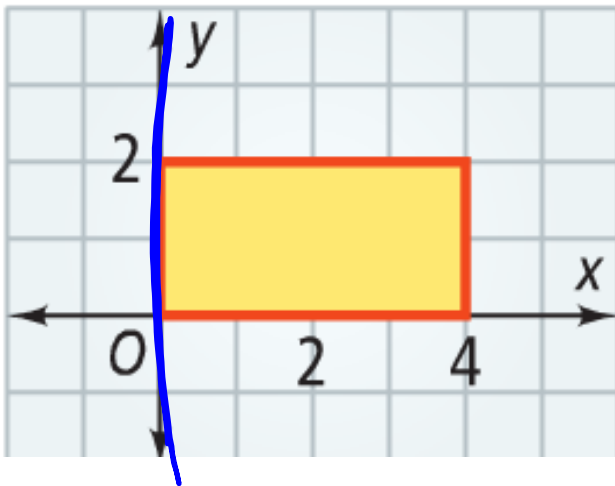
What shape is created
if you rotate a rectangle
around the y axis?



Cylinder!



Rotations about a line



$$V = \pi r^2 h$$

$$V = (3.14)(4)^2 2$$

$$V = 100.5$$

Closure: Today I learned how to find the volume of a cylinder and prism.

Identify the base of your prism first!

