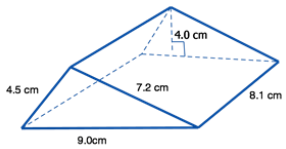
Warmup

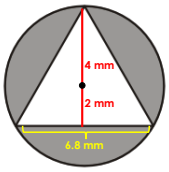
4/(π rounded to the nearest whole number)

1) Find the volume of the prism:



(Warmup continued on the next page)

2) Find the area of the shaded region:



Area = Circle – Triangle

Area = $\pi \cdot 4^2 - \frac{1}{2} \cdot 6.8 \cdot 6$

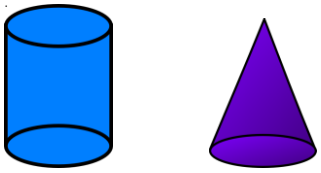
Area $\approx 50.3 - 20.4$

Area $\approx 29.9mm^2$

Go over Prisms WS

Cones & Cylinders with POPCORN

- Our next topic will be volumes of **cylinders** and **cones**.



OUR JOB:

- Figure out how many kernels of popcorn it takes to fill up the tube!
- **WE HAVE:**
  - A copy of the circle the same size as the opening of the tube
  - A line that is the same length as the height of the tube
- **VOLUNTEERS TO HELP COUNT?**

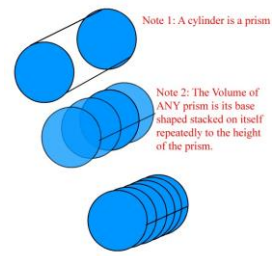
AND THE ANSWER IS…

1089

kernels

Table of Contents

A cylinder is a prism…

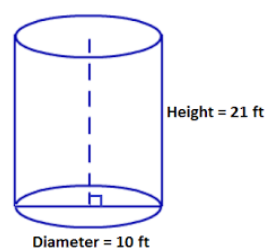


Volume of a Cylinder

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

- r = radius of the base
- h = height of cylinder

- Find the volume. Round to the nearest tenth.



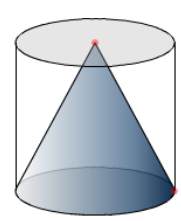
$V = \pi r^2 \cdot h$

$V = \pi \cdot 5^2 \cdot 21$

$V \approx 1649.3\ ft^3$

Popcorn Challenge: Part 2

- Goal: Figure out how many kernels of popcorn would fit in the cone.
- The cone and cylinder have the same height and the same radius. I will pass around the cylinder and the cone – you may look at it for a few seconds.
- You and your group need to **discuss** and come up with how many kernels of popcorn you think fit in the



How many of the "cones" fill up the cylinder?

- Demonstration (need a volunteer)

AND THE ANSWER IS…

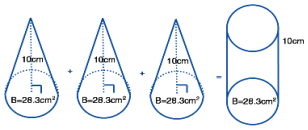
356

kernels

Volume of a Cone

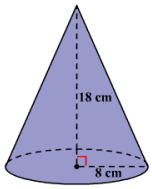
$V = \frac{1}{3}\pi r^2 \cdot h$ **OR:** $V = \frac{\pi r^2 \cdot h}{3}$

- **Basically, 3 cones = 1 cylinder (if the radius & height is the same)**



Example: Cone

- **Find the volume of the cone:**



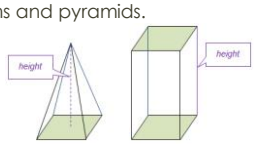
$$V = \frac{1}{3}\pi r^2 \cdot h$$

$$V = \frac{1}{3}\pi \cdot 8^2 \cdot 18$$

$$V \approx 1206.4\ cm^3$$

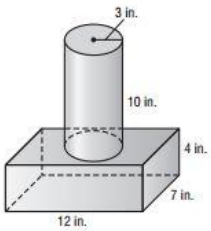
Pyramids

- The same thing happens with rectangular prisms and pyramids.



Pyramid: Volume is 1/3 of the prism with the same base and height

Find the volume:



Homework (Due wed)

- p. 593 (1 – 4)
- p. 601 (5 – 8)
- p.609 (2, 7, 8)