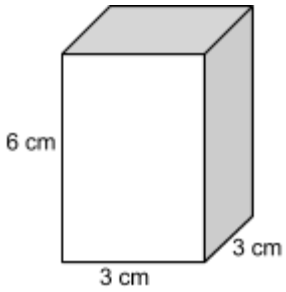
Lesson 1.5.7: Volume of Pyramids and Cones

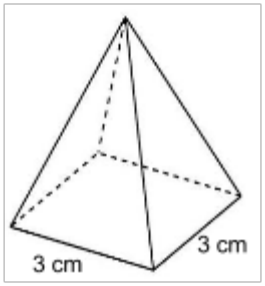
Targets:

1. I understand how to find the volume of pyramids and cones.
2. I understand how to find the formula for the volume of a pyramid and cone.

Warm Up:

1. What is the volume of the square prism?





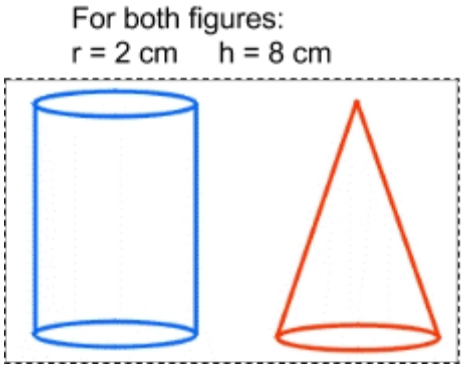
2. Predict the volume of the pyramid if it has the same height as the prism.

3. Why is this your prediction?

4. What is the volume of the cylinder?

5. Predict the volume of the cone if it has the same height as the cylinder?

6. Why is this your prediction?



Formula for Pyramid

Type in this URL to watch a video that compares the volume of a pyramid to the volume of a prism (or just click the link from my webpage).
https://www.youtube.com/watch?v=OUDjY6vJ8pw

Here is the formula for volume of a PRISM: $V = B \cdot h$

What is the formula for the volume of a PYRAMID? _____

Formula for Cone

Type in this URL to watch a video that compares the volume of a cone to the volume of a cylinder (or just click the link from my webpage).
https://www.youtube.com/watch?v=QnVr_x7c79w

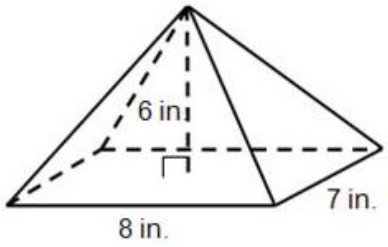
Here is the formula for the volume of a CYLINDER: $V = B \cdot h$ or more specifically $V = \pi r^2 \cdot h$

What is the formula for the volume of a CONE? _____

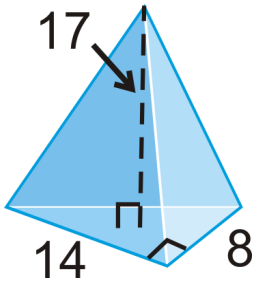
Practice Problems

Find the volume of the following figures. Give **exact** answers.

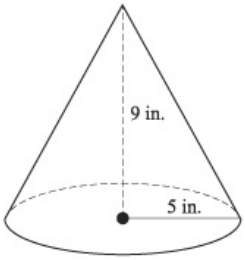
1. Volume = _____



2.) Volume = _____



3. Volume = _____

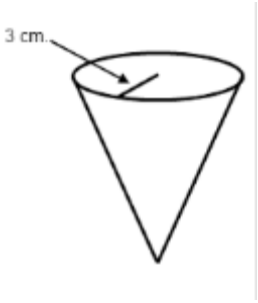


4. With the given information, find the missing height of this cone:

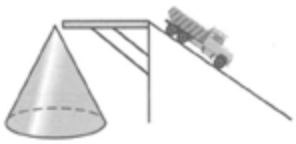
$V = 24\pi\ cm^3$

$r = 3\ cm$

$h = ?$



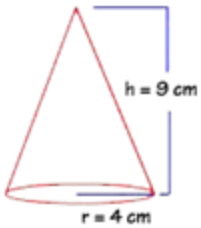
5.) The North County Sand and Gravel Company stockpiles sand to use on the icy roads in the northern rural counties of the state. Sand is brought in by tandem trailers that carry $12\ m^3$ each. The engineers know that when the pile of sand, which is in the shape of a cone, is 17 m across and 9 m high they will have enough for a normal winter. How many truckloads are needed to build the pile?



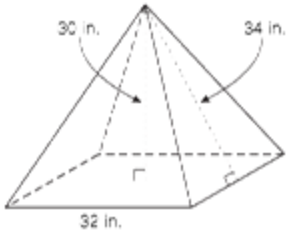
Exit Ticket:

For 1 and 2, find the volume of each figure.

1.) Volume = _____



2.) Volume = _____



3.) The volume of a cone is $84\pi\ cm^3$ and its height is $7\ cm$.

What is the radius of the cone? $r =$ _____