

Sec. 1.5- Volumes of Right Pyramids and Right Cones

Remember: Volumes of Right Rectangular Prisms and Cylinders

The volume of a prism is the space occupied by the prism.

A formula for the volume of a right rectangular prism is:

$$\text{Volume} = \text{area of base} \times \text{height}$$

Let A represent the base area and h represent the height.

Then, the volume of a right rectangular prism is:

$$V = A \times h$$

- To determine the volume of this right rectangular prism:

The base is a rectangle with length 4.0 m and width 6.0 m.

$$A = 4.0 \times 6.0$$

$$A = 24.0$$

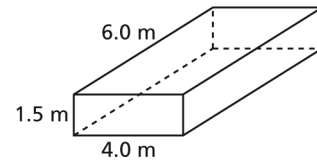
The area of the base is 24.0 m^2 .

$$V = A \times h$$

$$V = 24.0 \times 1.5$$

$$V = 36.0$$

The volume of the right rectangular prism is 36 m^3 .



A formula for the volume of a right cylinder is:

$$\text{Volume} = \text{base area} \times \text{height}$$

The base is a circle with **area πr^2** .

Let h represent the height.

Then, the volume of a cylinder is:

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

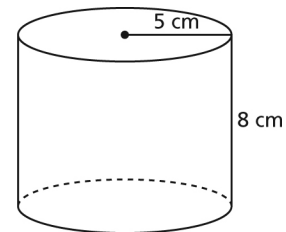
- To determine the volume of this cylinder:

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

$$V = \pi(5)^2 \times 8$$

$$V = 628.3185 \dots$$

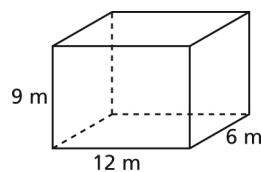
The volume of the right cylinder is approximately 628 cm^3 .



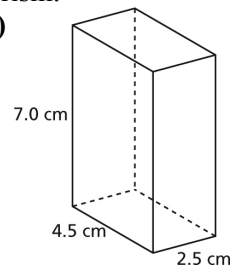
Check Your Understanding

- Determine the volume of each right rectangular prism.

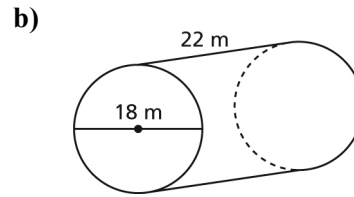
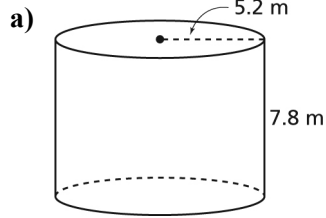
a)



b)

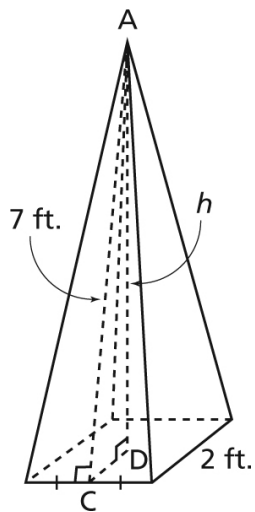
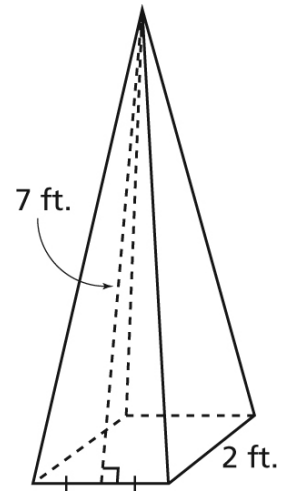


2. Determine the volume of each right cylinder to the nearest square unit.

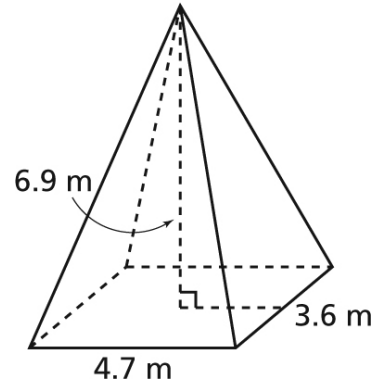


NOW onto Grade 10 Math.....

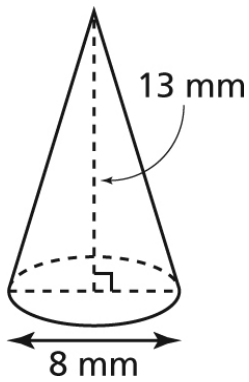
1. Calculate the volume of this right square pyramid to the nearest cubic foot.



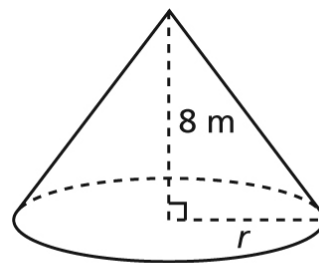
2. Determine the volume of a right rectangular pyramid with base dimensions 3.6 m by 4.7 m and height 6.9 m.
Answer to the nearest tenth of a cubic metre.



3. Determine the volume of this cone to the nearest cubic millimetre.



4. A cone has a height of 8 m and a volume of 300 m^3 .
Determine the radius of the base of the cone to the nearest metre.



$$V = 300 \text{ m}^3$$