

Warm Up

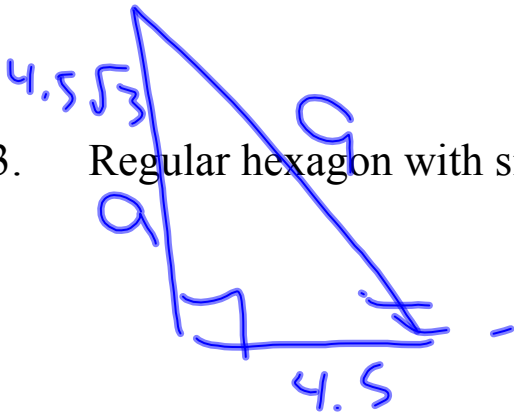
Find the area of each figure.

1. Circle with radius 15 m



$$\pi \cdot 15^2 = 225\pi \text{ m}^2$$

2. Right triangle with hypotenuse 12 cm and leg 6 cm



$$\frac{b \cdot h}{2} \quad \frac{6 \cdot 10.4}{2}$$

3. Regular hexagon with side length 9 in



$$\frac{1}{2} \cdot a \cdot p$$

12-5 Volume of Pyramids and Cones

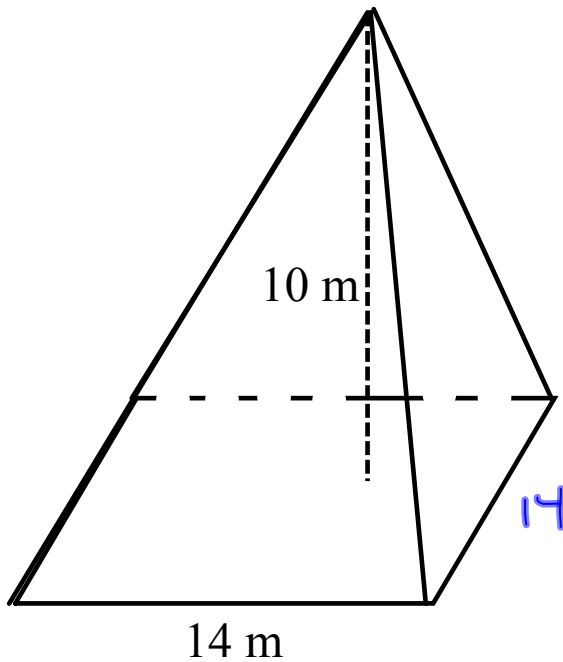
Volume of a Pyramid -

$$V = \frac{1}{3} B h$$

Volume of a Cone -

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

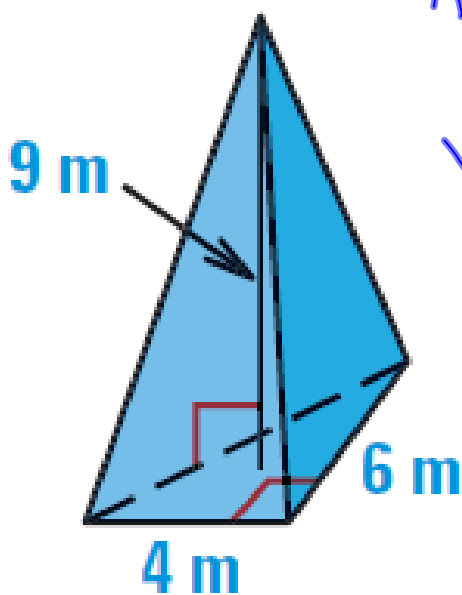
Ex 1 Find the volume of the square pyramid.



$$\frac{14^2 \cdot 10}{3}$$

$$653.\bar{3} \text{ m}^3$$

Ex 2 Find the volume of the triangular pyramid.



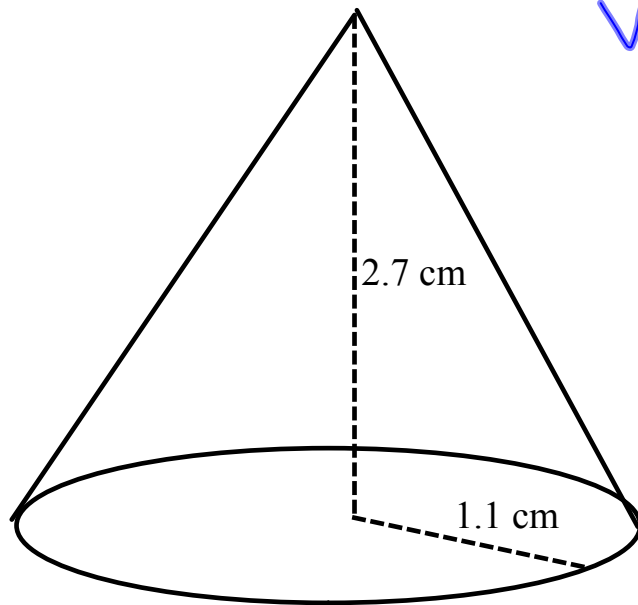
$$A = \frac{b \cdot h}{2} = \frac{4 \cdot 6}{2} = 12 \text{ m}^2$$

$$V = \frac{1}{3} \cdot B \cdot h$$

$$\frac{1}{3} \cdot 12 \cdot 9$$

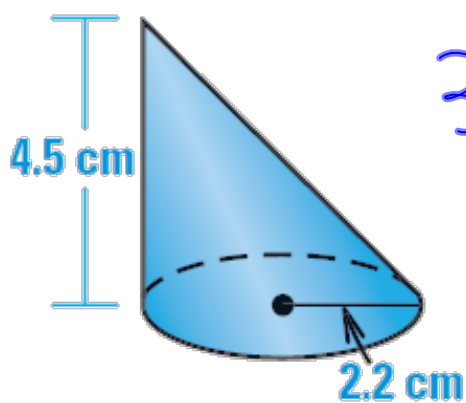
$$36 \text{ m}^3$$

Ex 3 Find the volume of the cone.



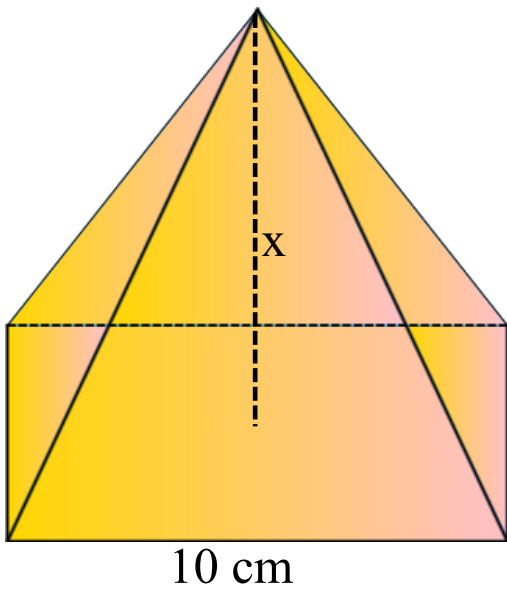
$$V = \frac{1}{3} \pi \cdot 1.1^2 \cdot 2.7$$
$$3.42 \text{ cm}^3$$

Ex 4 Find the volume of the cone.



$$\frac{2.2^2 \pi \cdot 4.5}{3}$$
$$22.8 \text{ cm}^3$$

Ex 5 Find the value of x if the volume = 200 cm^3 .



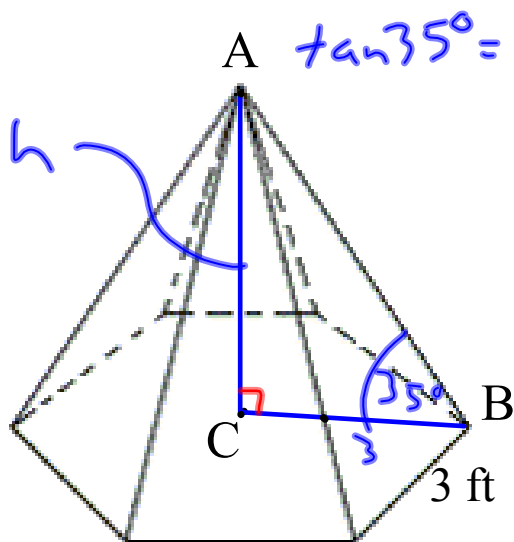
$$200 = \frac{1}{3} \cdot 100 \cdot x$$

$$2 = \frac{1}{3} \cdot x$$

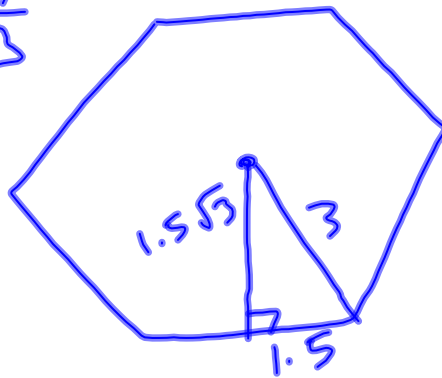
$$6 = x$$

10 cm

Ex 6 Find the volume of the regular hexagonal pyramid
In the diagram, the measure of angle $ABC = 35^\circ$.



$$\tan 35^\circ = \frac{h}{3}$$



$$A = \frac{1}{2} \cdot a \cdot P$$

$$\frac{1}{2} \cdot 1.5\sqrt{3} \cdot 18 \approx 23.4$$

$$V = \frac{1}{3} \cdot 23.4 \cdot 2.1$$

$$V \approx 16.38 \text{ ft}^3$$