

11.5 Volume of Pyramids & Cones

Formula for Volume of Pyramid & Cone

$$V = \frac{1}{3}Bh \quad \text{or} \quad V = \frac{Bh}{3}$$

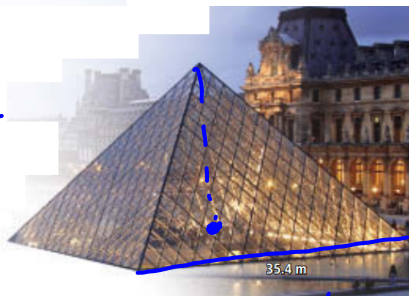
Ex 1

Architecture The entrance to the Louvre Museum in Paris, France, is a square pyramid with a height of 21.64 m. What is the approximate volume of the Louvre Pyramid?

$$V = \frac{Bh}{3} \quad h = 21.64$$

$$B = (35.4)^2 = 1253.16$$

$$V = \frac{1253.16(21.64)}{3} = \boxed{9,039 \text{ m}^3}$$



Ex 2 What is the volume in cubic feet of a square pyramid with base edges 40 ft and a slant height 25 ft?

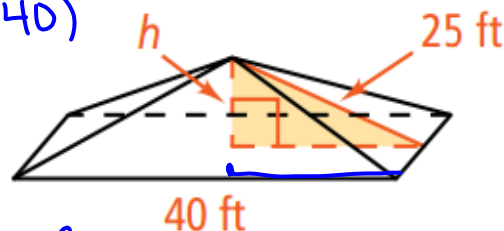
$$V = \frac{Bh}{3}$$

$$B = (40)^2$$

$$V = \frac{1600(15)}{3}$$

$$V = 8000 \text{ ft}^3$$

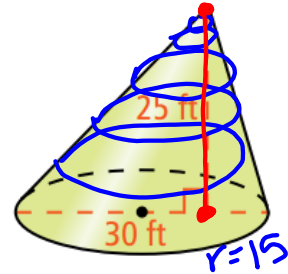
$$\begin{aligned} 20^2 + h^2 &= 25^2 \\ 400 + h^2 &= 625 \\ h^2 &= 225 \\ h &= 15 \end{aligned}$$



Ex 3 | What is the volume of the oblique cone?

Leave your answer in terms of π .

$$\begin{aligned} V &= \frac{Bh}{3} \\ &= \frac{225\pi(25)}{3} \\ &= 1875\pi \text{ ft}^3 \end{aligned}$$



$$\begin{aligned} B &= \pi r^2 \\ &= \pi(15)^2 \\ &= 225\pi \end{aligned}$$

Ex 4 | Find the value of x . Leave answer in simplest radical form. Not drawn to scale.

$$\begin{aligned} V &= \frac{Bh}{3} & B &= \pi r^2 \\ 3 \cdot 21\pi &= \frac{B \cdot 7}{3} \cdot 3 \end{aligned}$$

$$\frac{63\pi}{7} = \frac{B \cdot 7}{7}$$

$$9\pi = B$$

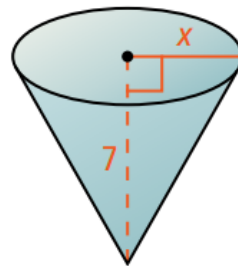
$$\frac{9\pi}{\pi} = \frac{\pi r^2}{\pi}$$

$$9 = r^2$$

$$3 = r$$

$$r = x$$

$$\boxed{x = 3}$$



Volume = 21π

