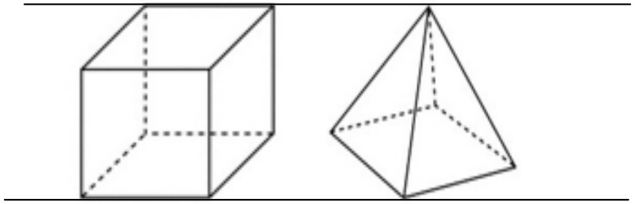
Sec 11-5

Volumes of Cones and Pyramids.

Given the square prism and square pyramid have the same Base and height.



How many pyramids will fill up the prism?

www.youtube.com/watch?v=rTs9HwWiBaI

Volume of a Pyramid:

$$V = \frac{1}{3}Bh$$

Find the volume of this pyramid.

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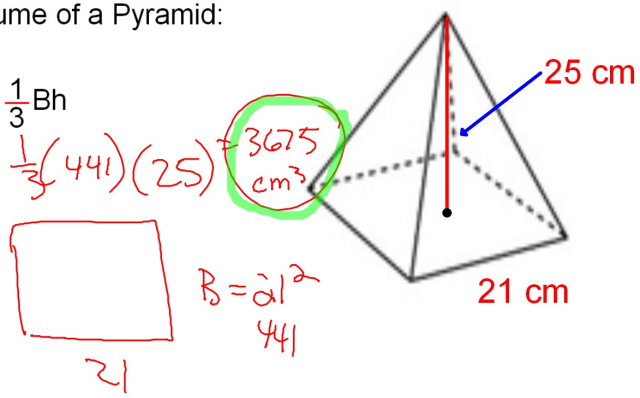
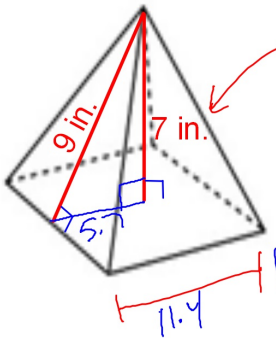


$\frac{1}{3}(441)(25) = 3675\ cm^3$

$B = s^2$

441

Find the volume of this pyramid to the nearest tenth.

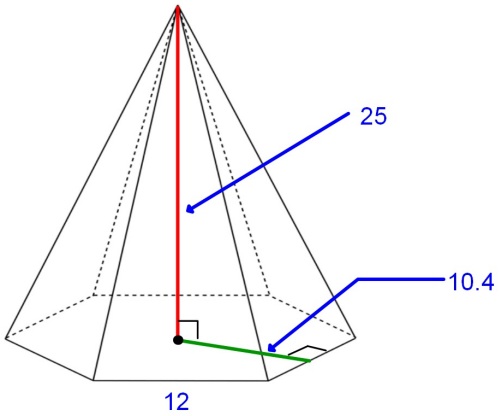


$B = (11.4)^2$

$V = \frac{1}{3}(130)(7)$

$303.3\ in^3$

Find the volume of this hexagonal pyramid to the nearest tenth.



$\frac{1}{2}ap$

$\frac{1}{2}(10.4)(72)$

$= 374.4$

$V = \frac{1}{3}(374.4)(25)$

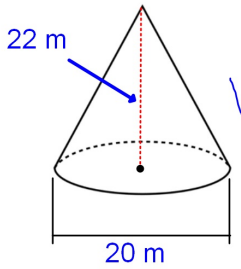
$V = 3120$

Volume of a Cone:

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

Find the volume of each cone.

a) Leave your answer in terms of π

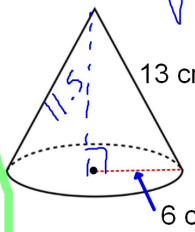


$V = \frac{1}{3}(100\pi)(22)$

$= \frac{2200\pi}{3}\ m^3$

$B = \pi(10)^2 = 100\pi$

b) Give your answer to the nearest tenth



$V = \frac{36\pi(11.5)}{3}$

$433.5\ cm^3$

$B = \pi(6)^2$

36π

The radius of the base of a cone is 6 cm. If the volume of this cone is 180π cm^3 find the height.

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

$\frac{180\pi}{\pi} = \frac{\frac{1}{3}\pi(6)^2 h}{\pi}$

$180 = \frac{1}{3} \cdot 36h$

$180 = 12h$

$h = 15$ cm