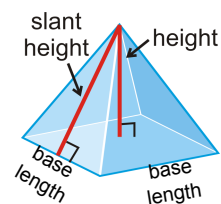


# Volume of Square Pyramids

Important Measurements to find Volume



Reviewing volume of prisms:

(area of the base) X (height)

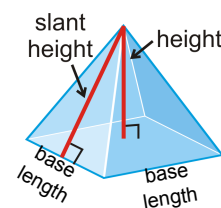
The square pyramid is similar:

(area of the base) X (height) X 1/3

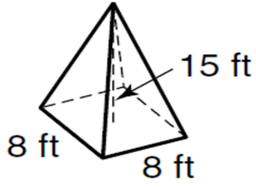
Why 1/3?

<https://www.youtube.com/watch?v=OUDjY6vJ8pw>

$$\text{Volume} = \left(\frac{1}{3}\right)b^2h \quad \text{OR} \quad \text{Volume} = \frac{b^2h}{3}$$



Calculate the volume of the square pyramid.

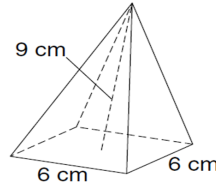


$$V = \frac{b^2 h}{3}$$

$$V = \frac{8^2 \cdot 15}{3}$$

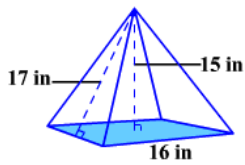
$$V = \frac{64 \cdot 15}{3} \quad V = \frac{960}{3} \quad V = 320 \text{ ft}^3$$

Calculate the volume of the square pyramid.



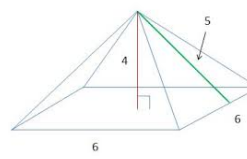
$$\begin{array}{r} 36 \\ \times 9 \\ \hline 324 \\ \hline \end{array} \quad 108 \text{ cm}^3$$

Calculate the volume of the square pyramid.



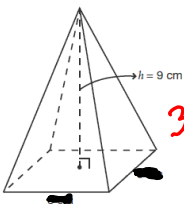
$$1280 \text{ in}^3$$

Calculate the volume of the square pyramid.



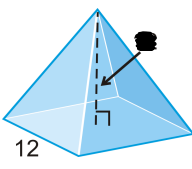
$$\begin{array}{r} 6 \\ 36 \\ \times 4 \\ \hline 144 \\ \hline \end{array} \quad V = 48$$

Find the length of the base of the square pyramid if the volume is 192 cubic centimeters.



$V = \frac{b^2 h}{3}$   
 $3 \cdot 192 = \frac{b^2 \cdot 9}{3}$   
 $576 = \frac{b^2 \cdot 9}{3}$   
 $\frac{576}{9} = \frac{b^2 \cdot 9}{9}$   
 $64 = b^2$

Find the height of the square pyramid if the volume is 576 cubic meters.



$V = \frac{b^2 h}{3}$   
 $576 \cdot 3 = \frac{12^2 h}{3}$   
 $1728 = \frac{144h}{3}$   
 $\frac{1728}{144} = \frac{144h}{144}$