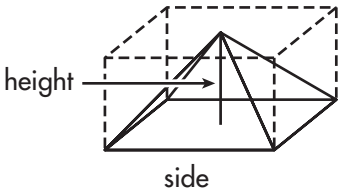
NAME _____

Lesson 5.12 Volume: Pyramids

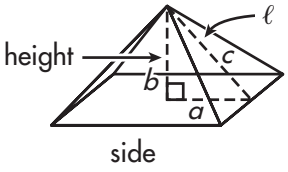
Volume is the amount of space a solid figure occupies. The **volume of a pyramid** is calculated as $\frac{1}{3}$ base × height. This is because a pyramid occupies $\frac{1}{3}$ of the volume of a rectangular prism of the same height. Because the base of a square pyramid is square, $B = s^2$.



So, $V = \frac{1}{3}Bh$ or $\frac{1}{3}s^2h$. Volume is given in **cubic units**, or **units^3**.

If $s = 10$ cm and $h = 9$ cm, what is the volume?

$V = \frac{1}{3}s^2h$ $V = \frac{1}{3}10^2 \times 9$ $V = \frac{900}{3}$ $V = 300$ cm^3



If you do not know the height but you do know the slant height or **length** of a triangle, you can use the Pythagorean Theorem to find the height.

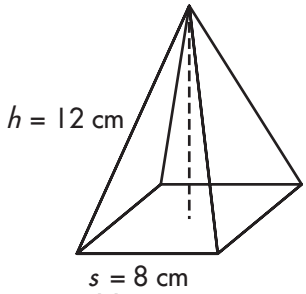
$a = \frac{1}{2}$ of the side length, $b =$ the height of the pyramid, $c =$ length

If $s = 6$ m and $\ell = 5$ m, what is h? $a^2 + b^2 = c^2$ $3^2 + b^2 = 25$ m $b^2 = 16$ $b = 4$ m

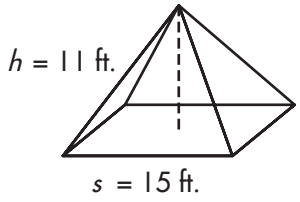
Find the volume of each pyramid. Round answers to the nearest hundredth.

a **b** **c**

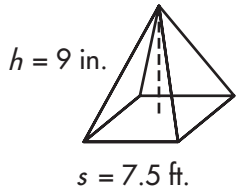
1.



$V =$ _____ cm^3

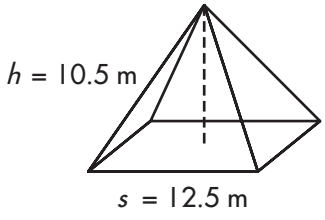


$V =$ _____ ft.^{3}

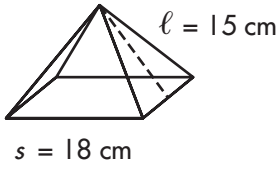


$V =$ _____ in.^{3}

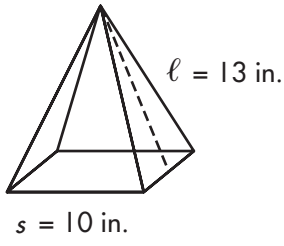
2.



$V =$ _____ m^3

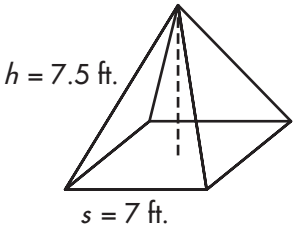


$V =$ _____ cm^3

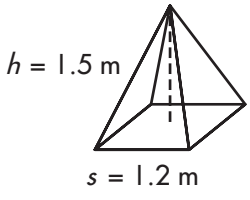


$V =$ _____ in.^{3}

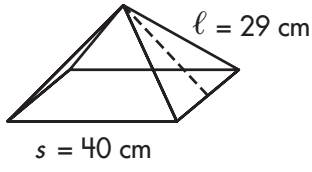
3.



$V =$ _____ ft.^{3}



$V =$ _____ m^3



$V =$ _____ cm^3