Lesson 14.5:

Volumes of Pyramids

Essential Question

How can you find the volume of a pyramid?

Key Idea

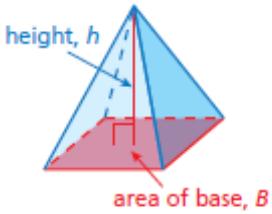
Volume of a Pyramid

Words The volume V of a pyramid is one-third the product of the area of the base and the height of the pyramid.

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

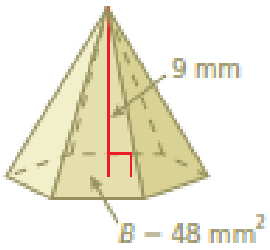
Area of base

Height of pyramid



True for **any** type of pyramid.

Find the volume of the pyramid.



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

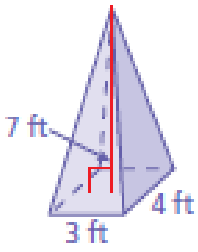
$\frac{1}{3} \cdot 48mm^2 \cdot 9mm$

$144mm^3$

Units cubed

Find the volume of the pyramid.

a.

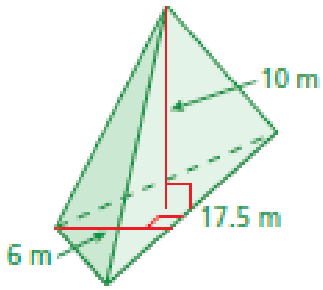


$V = \frac{1}{3}Bh$

$\frac{1}{3}(3ft \cdot 4ft) \cdot 7ft$

$28\ ft^3$

b.



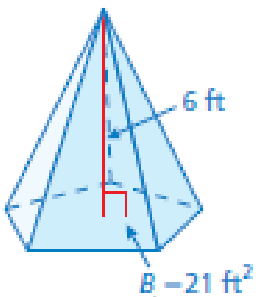
$V = \frac{1}{3}Bh$

$\frac{1}{3}\left(\frac{1}{2} \cdot 17.5m \cdot 6m\right) \cdot 10m$

$175\ m^3$

Find the volume of the pyramid.

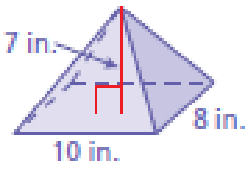
1.



$\frac{1}{3} \cdot 21ft^2 \cdot 6ft$

$42\ ft^3$

2.

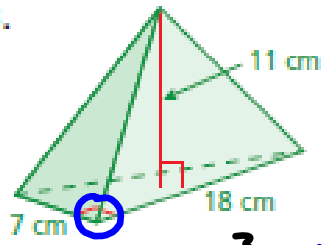


$\frac{1}{3}(10in \cdot 8in) \cdot 7in$

$\frac{1}{3}(80in^2) \cdot 7in$

$186.\overline{6}\ in^3$ or $186\frac{2}{3}\ in^3$

3.



$\frac{1}{3}\left(\frac{1}{2} \cdot 7cm \cdot 18cm\right) \cdot 11cm$

$231\ cm^3$

a. The volume of sunscreen in Bottle B is about how many times the volume in Bottle A?

$\frac{1}{3} \cdot 2 \cdot 1 \cdot 6 = 4 \text{ in}^3$

$\frac{1}{3} \cdot 3 \cdot 1.5 \cdot 4 = 6 \text{ in}^3$

b. Which is the better buy?

Find unit price!

$ per in^3

$\frac{\$9.96}{4 \text{ in}^3} = \$2.49/\text{in}^3$

$\frac{\$14.40}{6 \text{ in}^3} = \$2.40/\text{in}^3$

Bottle B is the better buy!