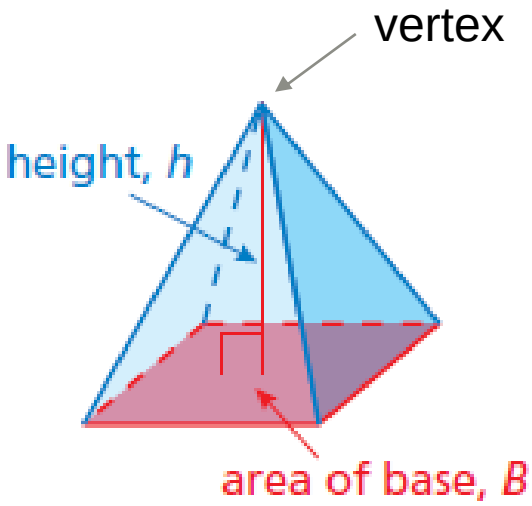
VOLUME OF PYRAMIDS

Lesson 9-5

Volume of a Pyramid

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



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

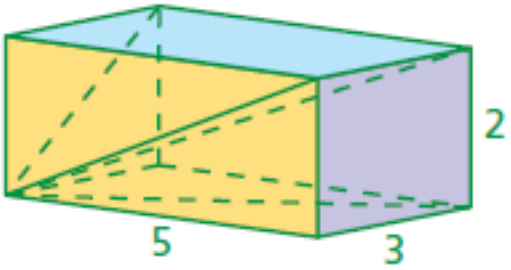
Area of base

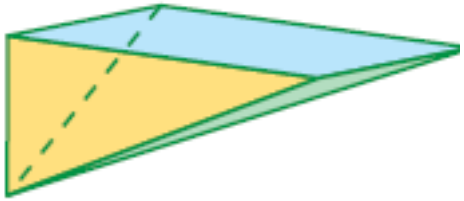
Height of pyramid

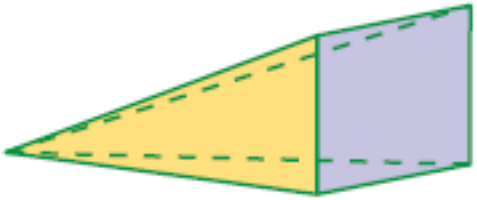
The h of a pyramid is the perpendicular distance from the base to the vertex, not the slant height..

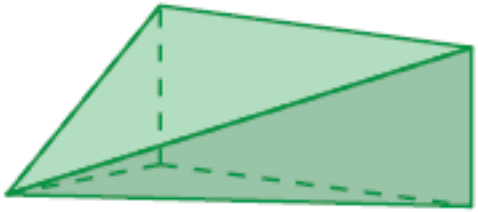
Volume of a Pyramid

Understanding how the formula for a pyramid is derived.







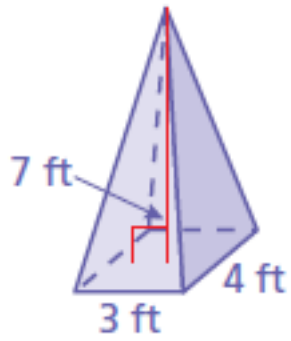


$$V = \frac{1}{3}Bh$$

EXAMPLE 1 Finding the Volume of a Pyramid

Find the volume of the pyramid.

a.



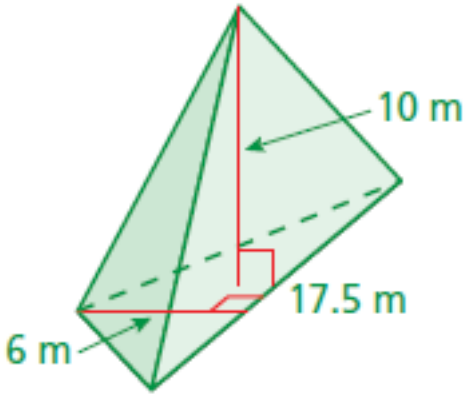
$$V = \frac{1}{3}Bh$$

$$= \frac{1}{3}(4)(3)(7)$$

$$= 28$$

$$V = 28\ ft^3$$

b.



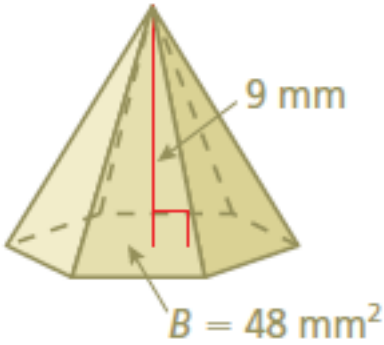
$$V = \frac{1}{3}Bh$$

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

$$= 175$$

$$V = 175\ m^3$$

c.



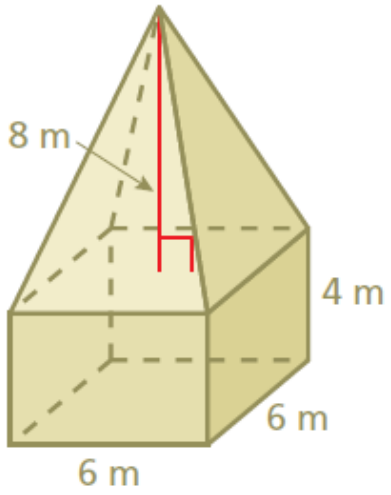
$$V = \frac{1}{3}Bh$$

$$= \frac{1}{3}(48)(9)$$

$$= 144$$

$$V = 144\ mm^3$$

Find the volume of the composite solid.



What shapes make up this composite solid?

$V = 96 + 144 = 240\ m^2$

Square Pyramid

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

$$V = \frac{1}{3}(6)^2(8)$$

$$V = 12\ (8)$$

$$V = 96\ m^3$$

Square Prism

$$V = Bh$$

$$V = (6)^2(4)$$

$$V = 36\ (4)$$

$$V = 144\ m^2$$