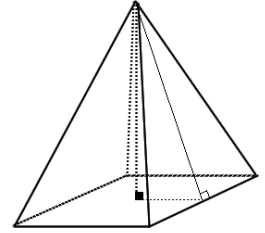


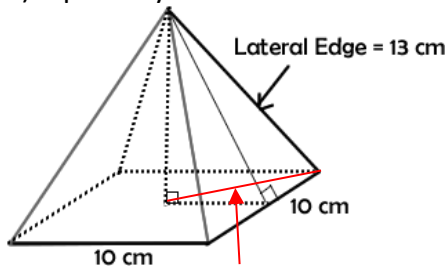
1. Jeff missed class and Dillon is explaining the notes. "The slant height and the height of the pyramid basically mean the same thing." Is this summary of height correct? Explain.

No, slant height is perpendicular to the base edge along the face of the pyramid but the height is perpendicular to the base (in the middle of the pyramid if right).

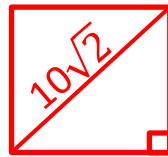


2. Determine the volume of the pyramid.

a) Square Pyramid



Base



10

10

$5\sqrt{2}$  (  $\frac{1}{2}$  square's diagonal)

$B = 10(10) = 100$

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

$h^2 + (5\sqrt{2})^2 = 13^2$

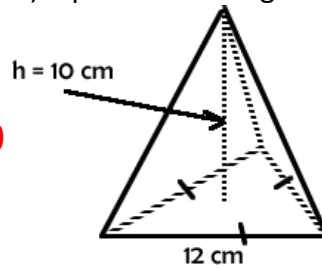
$h^2 = 119$

$V = \frac{100(10.91)}{3}$

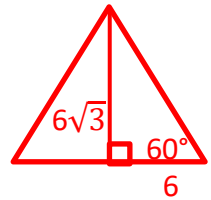
$h \approx 10.91$

Volume =  $363.62 \text{ cm}^3$  (2 dec.)

b) Equilateral Triangular Pyramid



Base



$B = \frac{bh}{2} = \frac{12(6\sqrt{3})}{2}$

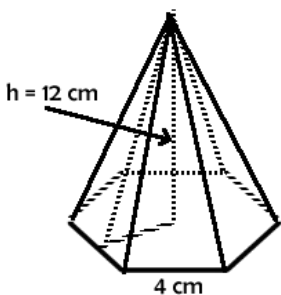
$B = 36\sqrt{3}$

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

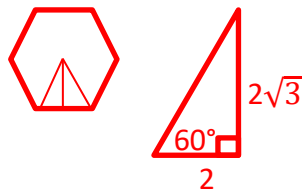
$V = \frac{36\sqrt{3}(10)}{3} = \frac{360\sqrt{3}}{3}$

Volume =  $120\sqrt{3} \text{ cm}^3$  (E)

c) Regular Hexagonal Pyramid



Base



$B = \frac{1}{2} ap = \frac{1}{2} (2\sqrt{3})(4)$

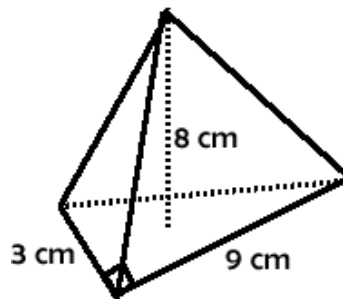
$B = 24\sqrt{3}$

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

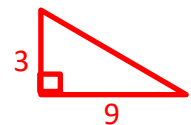
$V = \frac{24\sqrt{3}(12)}{3}$

Volume =  $96\sqrt{3} \text{ cm}^3$

d)



Base



$B = \frac{1}{2} bh = \frac{1}{2} (9)(3)$

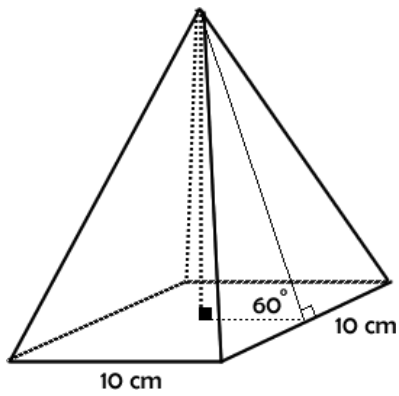
$B = 13.5$

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

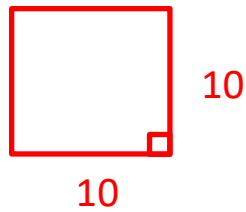
$V = \frac{13.5(8)}{3}$

Volume =  $36 \text{ cm}^3$  (2 dec.)

e) Square Pyramid



Base



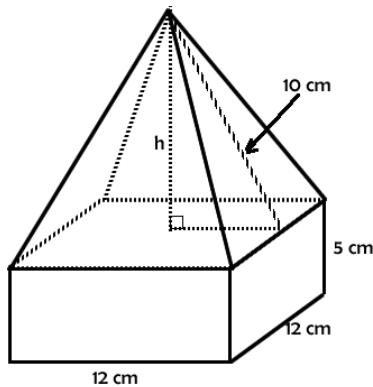
$$B = 10(10) = 100$$

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

$$V = \frac{100(5\sqrt{3})}{3}$$

$$\text{Volume} = \frac{500\sqrt{3}}{3} \text{ or } 166\frac{2}{3}\sqrt{3} \text{ cm}^3 \text{ (E)}$$

f)



Pyramid

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

$$V = \frac{144(8)}{3} = 384 \text{ cm}^3$$

Prism

$$V = Bh = 144(5) = 720 \text{ cm}^3$$

$$h^2 + 6^2 = 10^2$$

$$h^2 = 64$$

$$h = 8$$

$$\text{Pyramid} + \text{Prism} = 384 + 720$$

$$\text{Volume} = \underline{1104 \text{ cm}^3}$$