

Sec. 1.4

Surface Area and Volume of square based pyramids

S.A = outside shapes

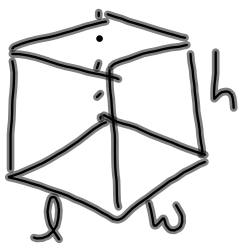
$$S.A = 4 \Delta + \square$$

$$S.A = 4 \left(\frac{bh}{2} \right) + lw$$

Volume = capacity (fill it up)

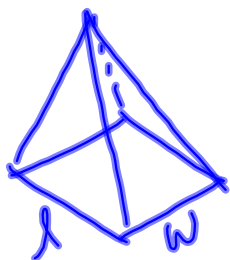
$$* \text{ Volume} = Ah$$

(area of base) \times h



$$V = lwh$$

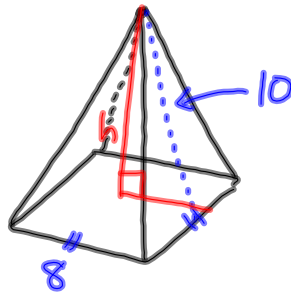
Pyramid



$$V = \frac{Ah}{3} \Rightarrow \frac{lwh}{3}$$

examples

①



Surface Area

$$4\Delta + \square$$

$$SA = 4\left(\frac{bh}{2}\right) + lw$$

$$= 4\left(\frac{(8)(10)}{2}\right) + (8)(8)$$

$$= 160 + 64$$

$$= 224 \text{ units}^2$$

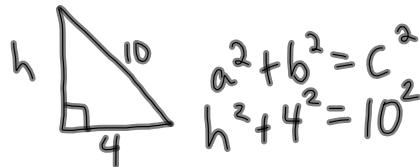
Volume

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

$$V = \frac{lw h}{3}$$

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

* We need the height of the pyramid.



$$h^2 + 16 = 100$$

$$h^2 = 100 - 16$$

$$h^2 = 84$$

$$h = \sqrt{84}$$

$$h = 9.2$$

$$V = \frac{lw h}{3} \Rightarrow \frac{(8)(8)(9.2)}{3}$$

$$= \frac{588.8}{3}$$

$$= 196.3 \text{ units}^3$$