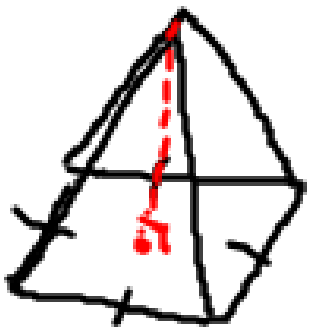
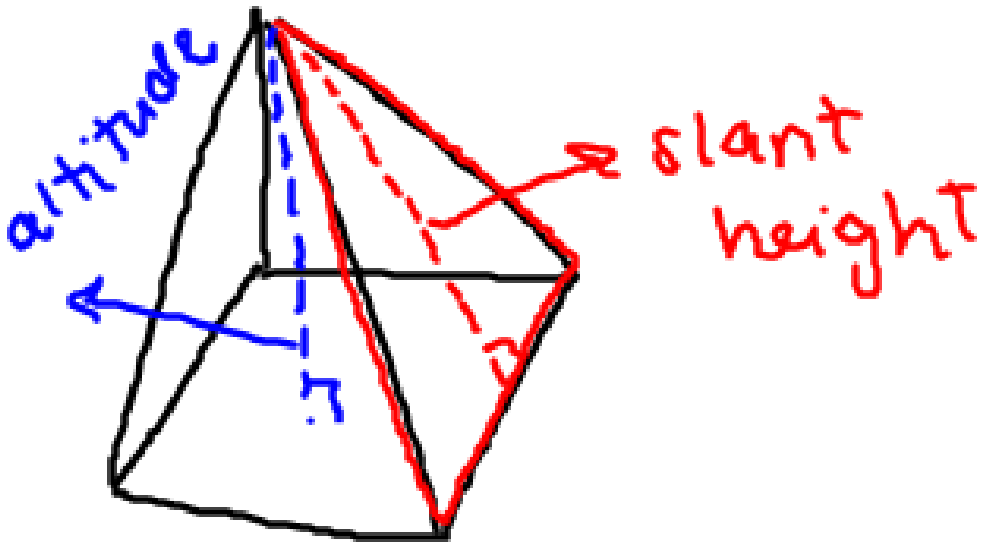
12 - 5
Surface Area of Pyramids

regular pyramid: base is a regular polygon; segment connecting vertex to center of base is $\perp$ to base



slant height: height of each lateral face (ℓ)



Lateral Area: $\frac{1}{2}Pl$

P: perimeter of base

l: slant height

ex: regular hexagonal pyramid

sides of base: 4 in, slant height: 12 in

$LA = \frac{1}{2}Pl$

$LA = \frac{1}{2} \cdot 24 \cdot 12$

$LA = 144 \text{ in}^2$

Surface Area: $\frac{1}{2}Pl + B$

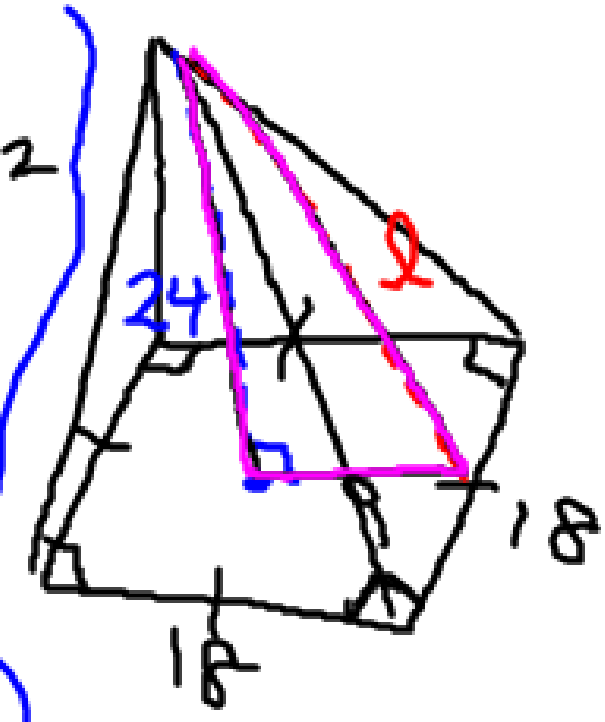
B: area of base

ex: reg. square pyramid, sides of base 18m, altitude is 24m, find SA.

$24^2 + 9^2 = \ell^2$

$\sqrt{657} = \sqrt{\ell^2}$

$\sqrt{657} = \ell$



$\frac{1}{2}P\ell + B$

$\frac{1}{2}72\sqrt{657} + 324$

1246.8 m^2

Homework:

12 - 5 WS