

Rt. Prism

This Hexagonal prism has a height of 21". The side lengths of the bases are all 3.5". What is the surface area?

$$S = L + 2B$$

• Base area:

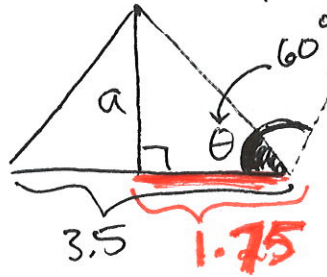
$$A = \frac{1}{2} n s a$$

$$n: 6$$

$$s: 3.5"$$

$$a: ?$$

Find apothem:



• get  $\theta$ , use trig.

$$\rightarrow \frac{180(6-2)}{6} = 120$$

$$\rightarrow \frac{120}{2} = 60^\circ$$

$$\tan 60 = \frac{a}{1.75} \rightarrow 1.75 \tan 60^\circ \approx 3.03$$

• Base area =  $\frac{1}{2} 6 \cdot 3.5 \cdot 3.03 \approx 31.8 = B$

• So  $B \approx 31.8$ .

$$S = L + 2B$$

What's  $L$ ?

$$L = ph$$

$$= (3.5 \cdot 6) \cdot 21$$

$$L = 441$$

Thus  $S = 441 + 2(31.8)$

$$\boxed{S = 504.6 \text{ in}^2}$$