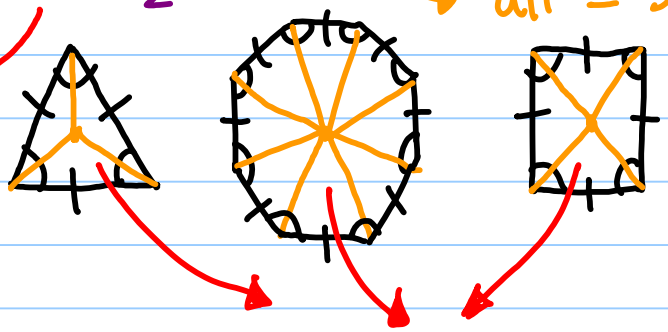
2/21 TUE

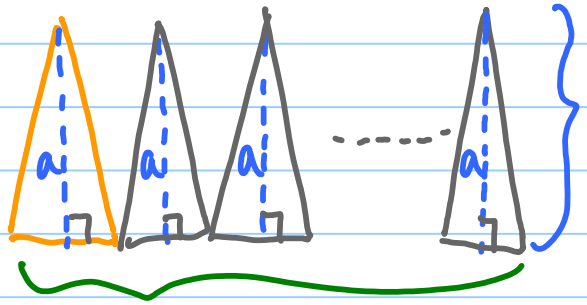
10.5 Areas of Regular Polygons

Recall: $A = \frac{1}{2}bh$

Regular: all ≅ sides & ≅ angles



Regular



a: apothem

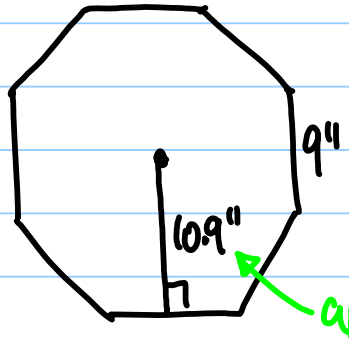
P: perimeter

Thm 10.5

$A = \frac{1}{2}aP$

area of a regular polygon

ex 1) Find the area.



Regular Octagon

sides of an octagon

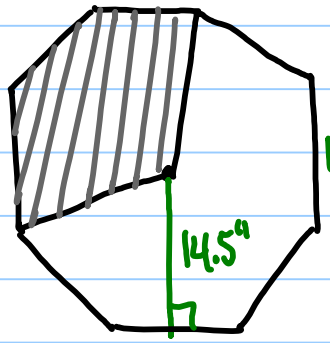
8 · 9"

$A = \frac{1}{2}aP$

$\frac{1}{2}(10.9)(72)$

$= 392.4 \text{ in}^2$

ex 2)



Find the area of the shaded region (of the regular octagon).

8 · 12

$A = \frac{1}{2}aP$

$= \frac{1}{2}(14.5)(96)$

$= 696 \text{ in}^2$

"pizza slices"

$\frac{3}{8}(696) = 261 \text{ in}^2$