

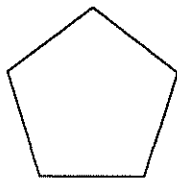
A New Look at Boxing
Activity 3
Notes Day 1

Not all prisms have rectangular bases. Some have bases that are triangular. Some have bases that are octagonal or pentagonal, etc.

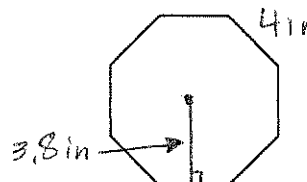
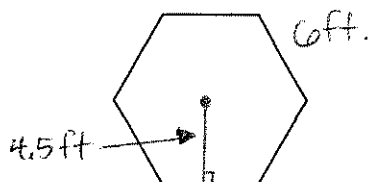
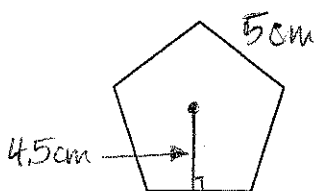
In this activity, you use your knowledge of the area of triangles to develop a method for finding the area of regular polygons with five or more sides.

Define **apothem** (pg. 104):

Label the apothem on the sketch below:



- Ex 1) a. Record the appropriate lengths in the first 3 columns of the table for each sketch.
 b. Find the area of one of the triangles in each of the sketches below.
 c. Use the area of one congruent triangle to find the total area of the polygon.



Polygon	No. of triangles	Apothem (a)	Length of Sides (s)	Area of Triangle	Area of Polygon
Pentagon					
Hexagon					
Octagon					
n-gon					

Ex 2) As the number of sides of a polygon increases, what happens to the shape of the polygon?

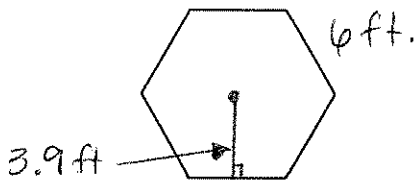
Ex 3) The area of a regular polygon with n sides, apothem a , and side length s can be described by the following equations:

$$\text{Area} = \left(\frac{1}{2}as\right)n$$

Is this the equation equivalent to the formula you developed on the bottom of the table?

Ex 4) Find the area of an octagon with a side length of 12 cm and an apothem of 3 cm.

Ex 5) Find the area of the figure below:



Ex 6) Use the net below to find the surface area of the corresponding pentagonal box.

