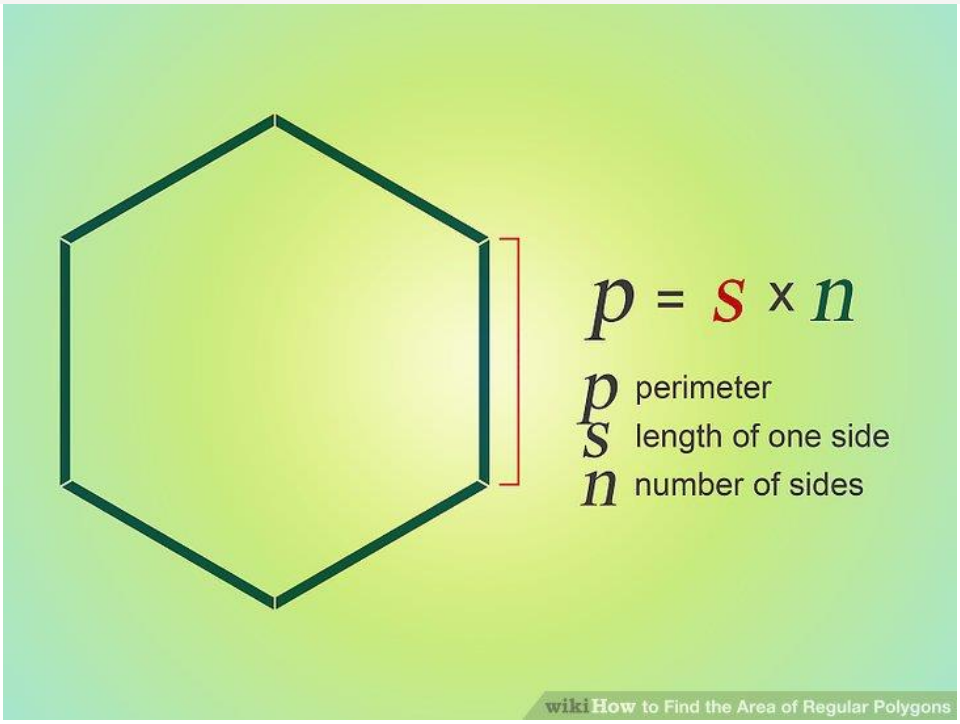
Area of A Regular Polygon

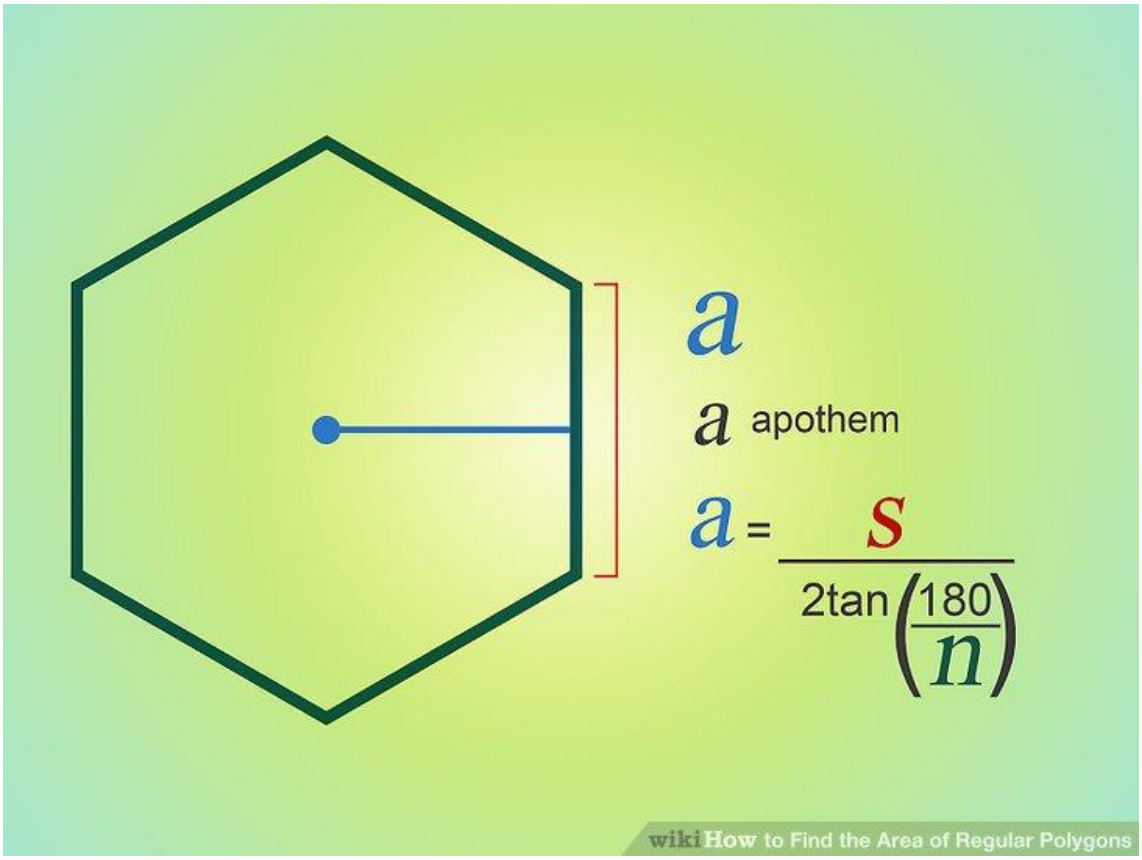
How to Find the Area of Regular Polygons

A regular polygon is a 2-dimensional convex figure with congruent sides and angles equal in measure. Many polygons, such as quadrilaterals or triangles have simple formulas for finding their areas, but if you're working with a polygon that has more than four sides, then your best bet may be to use a formula that uses the shape's apothem and perimeter. With a little bit of effort, you can find the area of regular polygons in just a few minutes.

Calculating the Area



1. **Calculate the perimeter.** The perimeter is the combined length of the outline of any two-dimensional figure. For a regular polygon, it can be calculated by multiplying the length of one side by the number of sides (n).



Determine the apothem. The apothem of a regular polygon is the shortest distance from the center point to one of the sides, creating a right angle. This is a little trickier to calculate than the perimeter.

- The formula for calculating the length of the apothem is this: the length of the side (*s*) divided by 2 times the tangent (tan) of 180 degrees divided by the number of sides (*n*).
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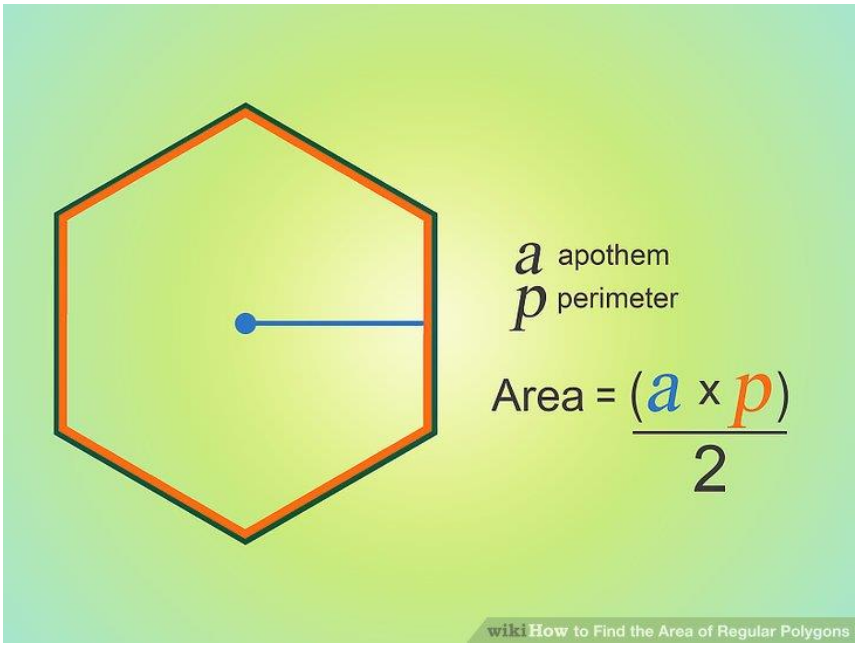
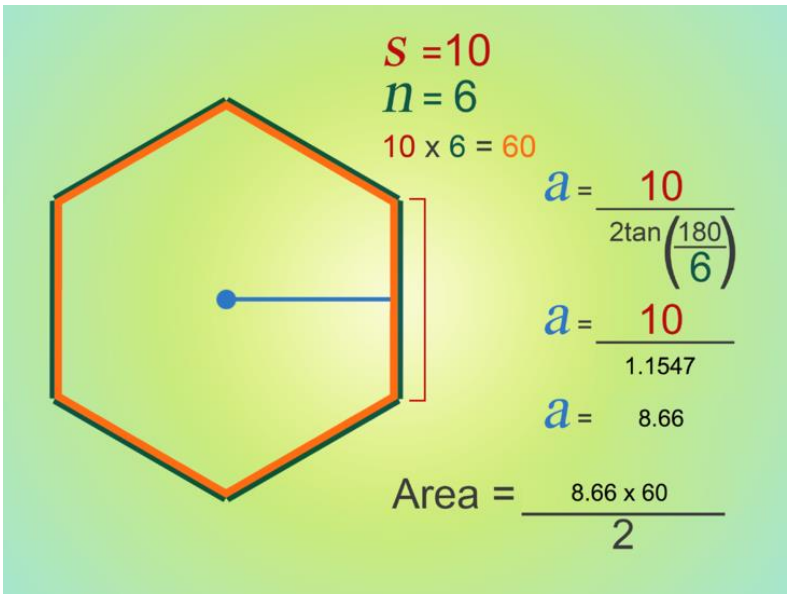
2. 

3. **Know the correct formula.** The **area of any regular polygon** is given by the formula:
Area = (*a* x *p*)/2 =½(ap)

   where "**a**" is the length of the apothem and "**p**" is the perimeter of the regular polygon.

4. 

Video 1: https://www.youtube.com/watch?v=YiQpIpyIZv0

Video 2: https://www.youtube.com/watch?v=9VnB4u45l-8