Area of a Rectangle: $A = b \cdot h$

Area of a Square: $A = b \cdot h = s^2$

Area of a Parallelogram: $A = b \cdot h$

The area of a Triangle. $A = \frac{1}{2} b \cdot h$

Area of a Trapezoid: $A = \frac{1}{2}(b_1 + b_2)h$

Area of a Rhombus and a Kite: $A = \frac{1}{2} d_1 d_2$

Hwk #23 Sec 10-2

Pages 542-544

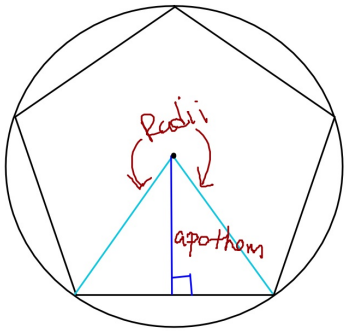
Problems 9-11, 22, 23, 26, 30, 31

Sec 10-3: Areas of Regular Polygons

Regular Polygon:

- All sides are congruent
- All interior angles are congruent

The circle is circumscribed about the pentagon.



Center of a Regular Polygon

The center of the circumscribed circle

Radius of a Regular Polygon

Distance from the center to a vertex

Apothem

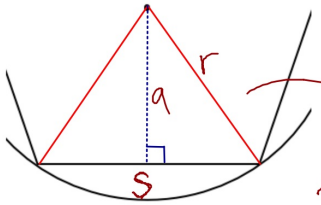
Perpendicular distance from the center to one of the sides.

Area of a Regular Polygon

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

a = Apothem

p = perimeter of the polygon



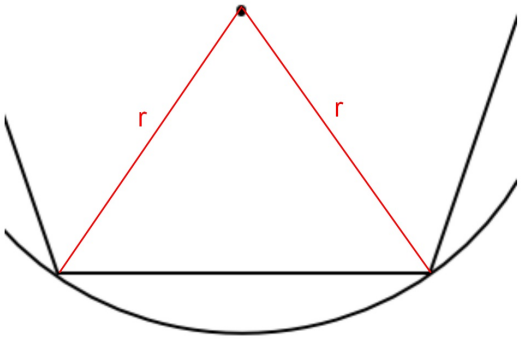
Area of one triangle

$A = \frac{1}{2}(s)(a)$

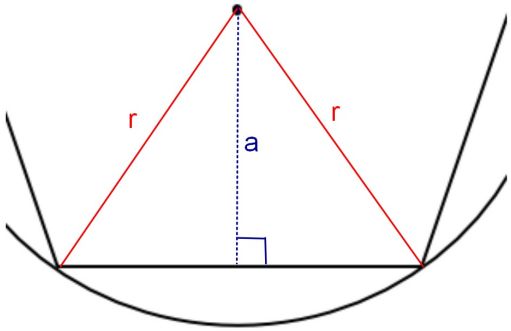
Area of all triangles

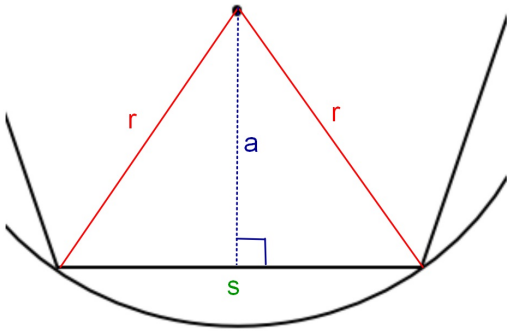
TOT $A = \frac{1}{2}(s)(a) \times \#sides$

Draw two radii

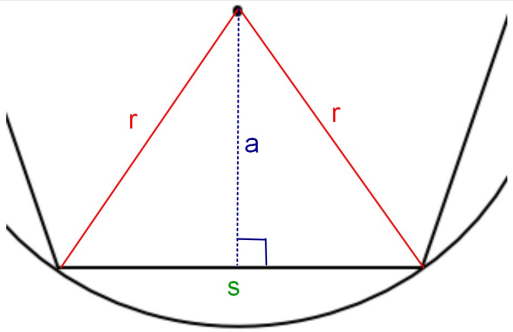


Draw the apothem





S is the length of one side of the polygon.



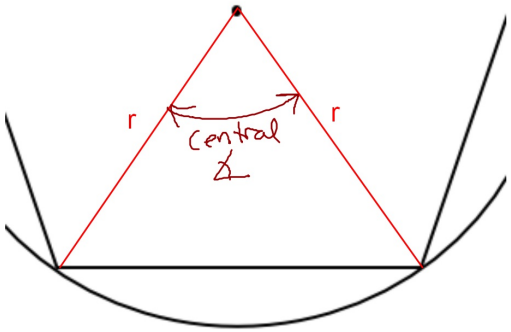
Area of this one triangle = $\frac{1}{2}as$

Area of the polygon = $\frac{1}{2}as \cdot$ # sides

Area of the polygon = $\frac{1}{2}as \cdot$ # sides

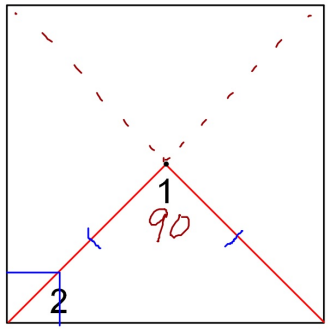
$s \cdot$ # sides = Perimeter of the polygon

Area of the polygon = $\frac{1}{2}ap$



Central Angle: Angle whose vertex is at the center of a circle.

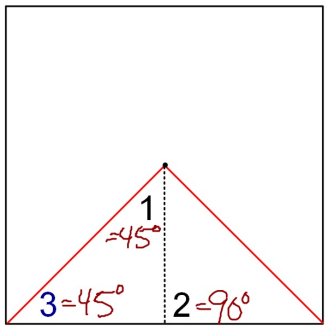
Square



What is the measure of each numbered angle?

$\angle 1 = 360 \div 4 = 90$

$\angle 2 = 45$

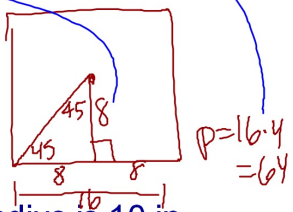


What is the measure of each numbered angle after you draw the apothem?

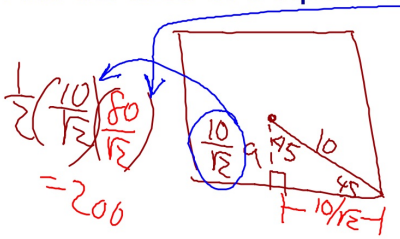
Find the area of a square whose apothem is 8 in.

$A = \frac{1}{2}ap = \frac{1}{2}(8)(64)$

$A = 256\ in^2$

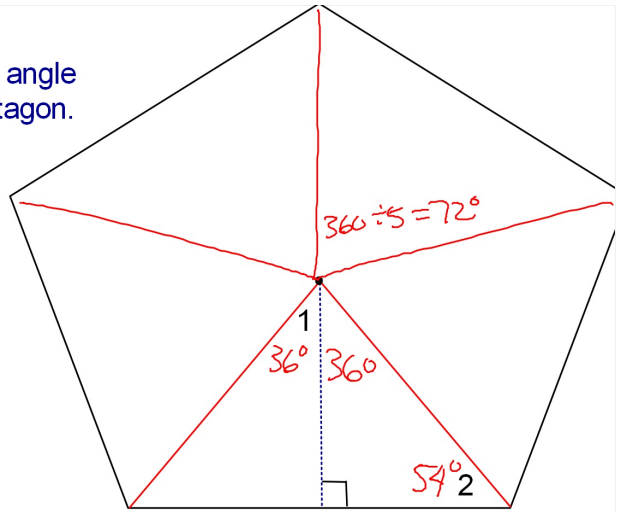


Find the area of a square whose radius is 10 in.

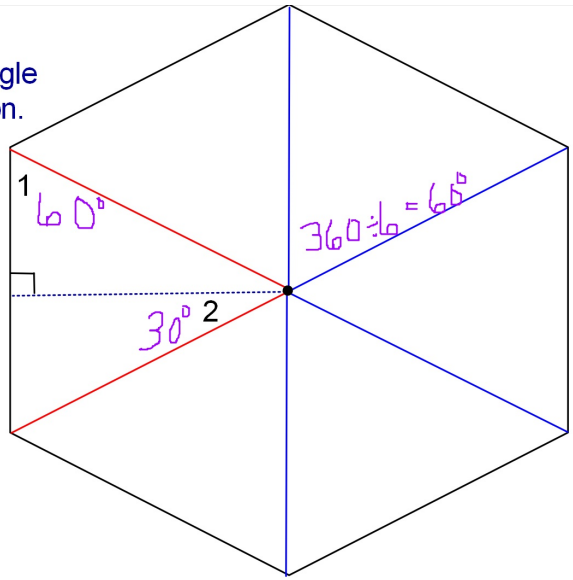


$P = 2\left(\frac{10}{\sqrt{2}}\right) \times 4 = \frac{80}{\sqrt{2}}$

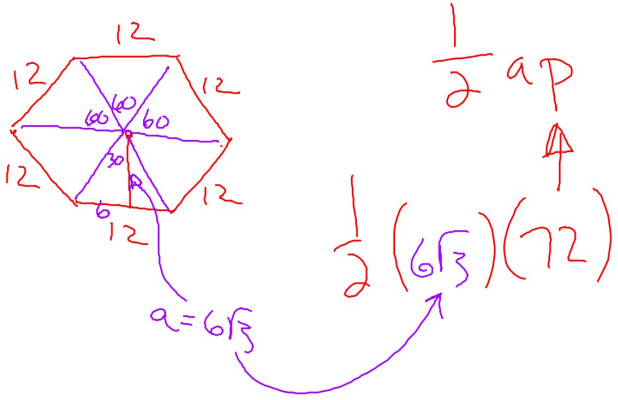
Find the measure of each numbered angle in this regular pentagon.



Find the measure of each numbered angle in this regular hexagon.



Find the area of a regular hexagon whose sides are 12 in long.



$\frac{1}{2}ap$

$\frac{1}{2}(6\sqrt{3})(72)$