



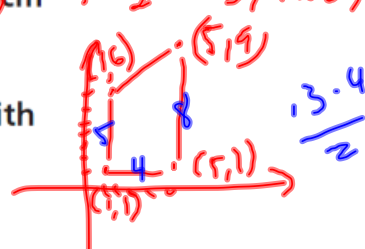
$$x^2 + y^2 + 2dx + 2ey + f = 0$$
$$(x, y) = F(x, y)$$
$$a = \pi r^2$$

Good Morning!

Make sure ur rdy2go
when the bell rings!

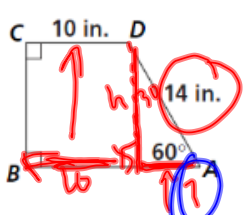
1. Find the area of a trapezoid with bases 3 cm and 19 cm and height 9 cm . $A = \frac{1}{2}h(b_1 + b_2)$
 99 cm^2

2. Find the area of a trapezoid in a coordinate plane with vertices at $(1, 1)$, $(1, 6)$, $(5, 9)$, and $(5, 1)$. 26 u^2



Find the area of each figure in Exercises 3–5. Leave your answers in simplest radical form.

3. trapezoid $ABCD$

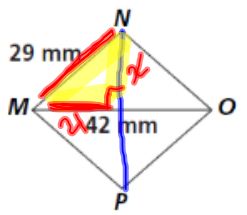


$94.5\sqrt{3}\text{ m}^2$
 $b_1 = 10$
 $b_2 = 17$
 $h = 7\sqrt{3}$

4. kite with diagonals 20 m and $10\sqrt{2}\text{ m}$ long $100\sqrt{2}$

$A = \frac{1}{2}d_1d_2$

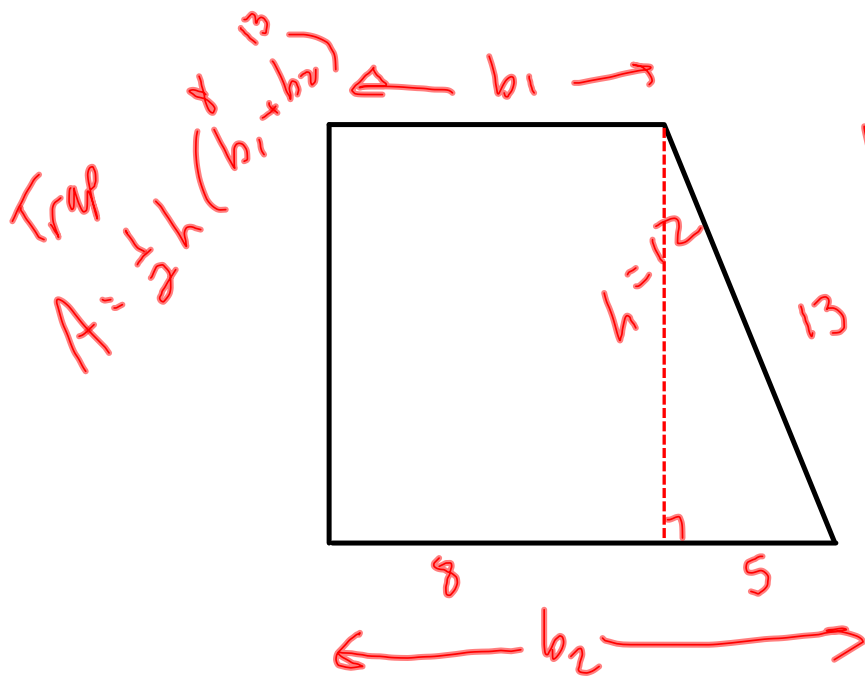
5. rhombus $MNOP$



840
 $A = \frac{1}{2}d_1d_2$
 $A = bh$
 $d_1 = 42$

$x^2 + 21^2 = 29^2$

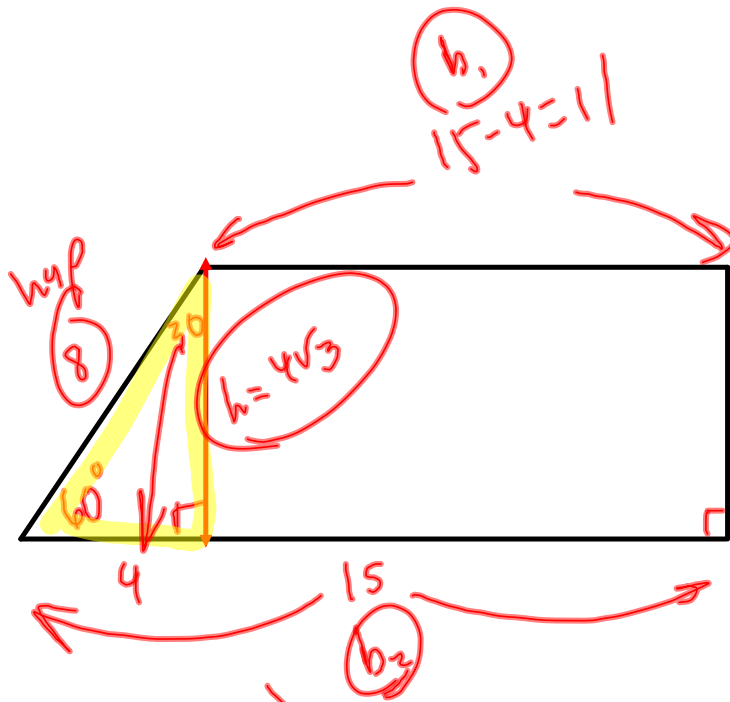
#10 pg 326



$$h^2 + 5^2 = 13^2$$

5, 12, 13
Pythag triple!

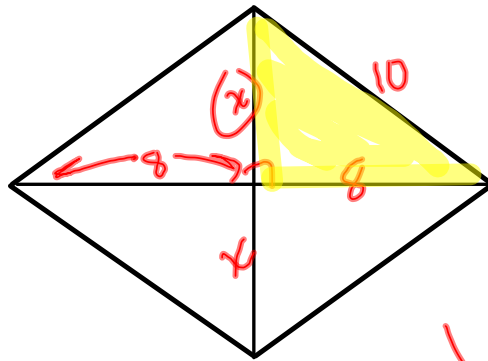
#11 pg 376



$$A = \frac{1}{2} h (b_1 + b_2)$$
$$= \frac{1}{2} (4\sqrt{3}) (11 + 15)$$

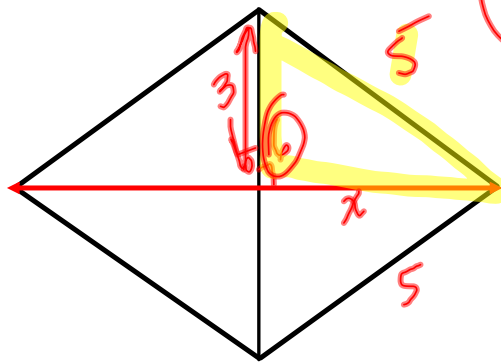
#19 pg 377

$$x^2 + 8^2 = 10^2$$



$$A = \frac{1}{2} d_1 d_2$$

#20 py 377
Rhombus

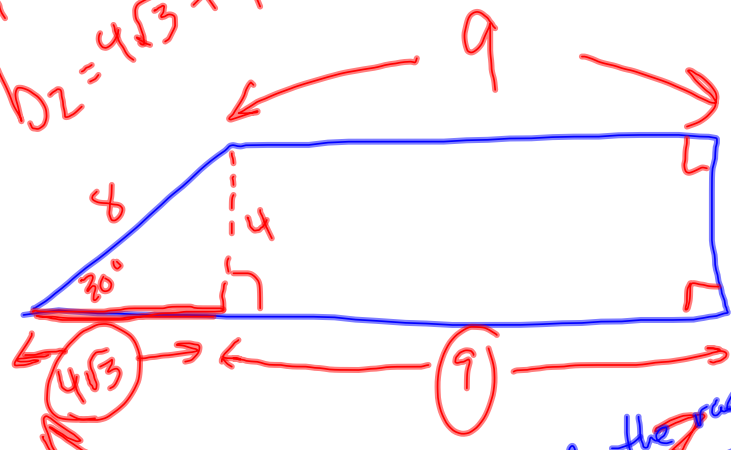


Pythag triple!
 $x^2 + 3^2 = 5^2$
 $x = 4$

$d_1 = 6$
 $d_2 = 8$

#27
pg 377

$h = 4$
 $b_1 = 9$
 $b_2 = 4\sqrt{3} + 9$



$A = \frac{1}{2} h (b_1 + b_2)$
 $\frac{1}{2} (4) (9 + 4\sqrt{3} + 9)$
 $2 (4\sqrt{3} + 18)$
 $8\sqrt{3} + 36$

Just treat the radical like a variable

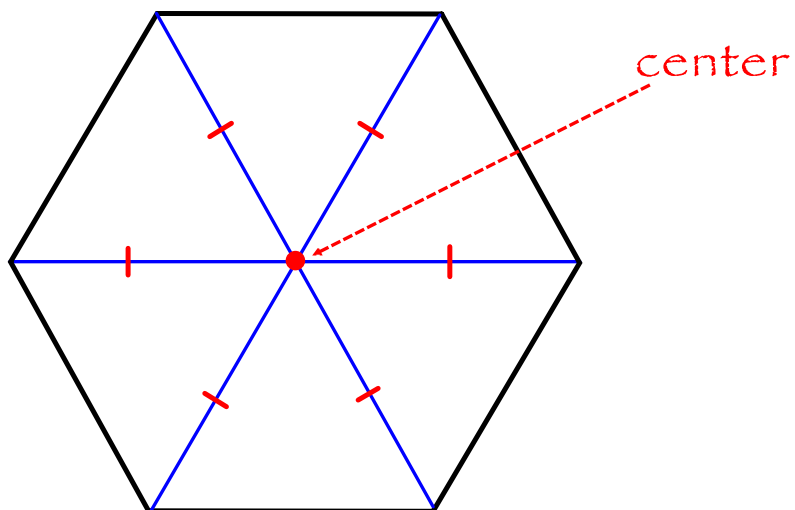
$$\frac{9 + 4x + 9}{4x + 18}$$

Primary named polygons...

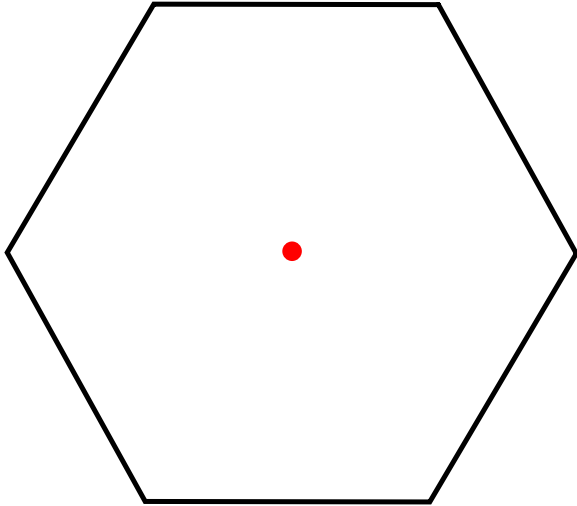
- Triangle
- Quadrilateral
- Pentagon
- Hexagon
- Octagon
- Decagon
- Dodecagon
- n-gon (as in a 20-gon for a 20 sided polygon)

Center of a regular polygon

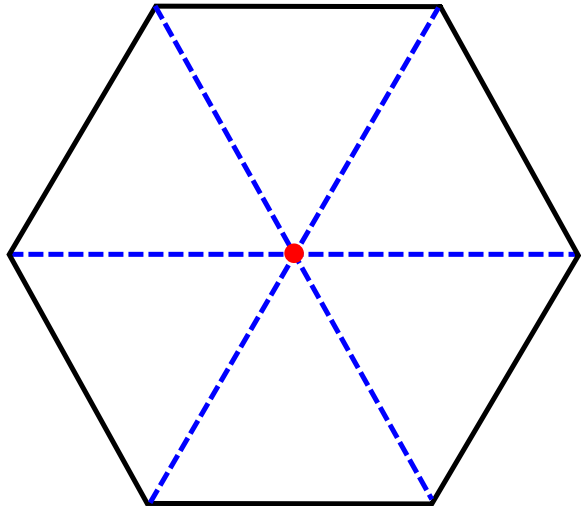
Point equidistant from the vertices.



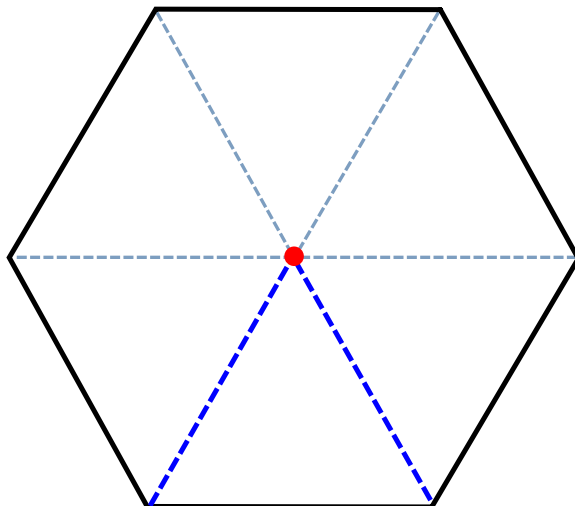
Area of a general regular polygon



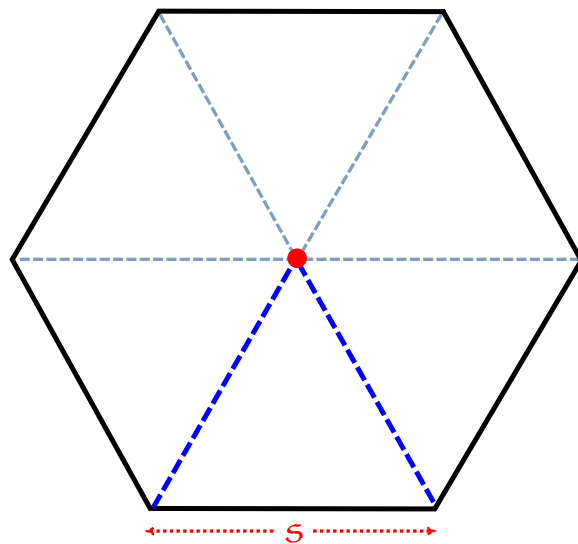
Area of a general regular polygon



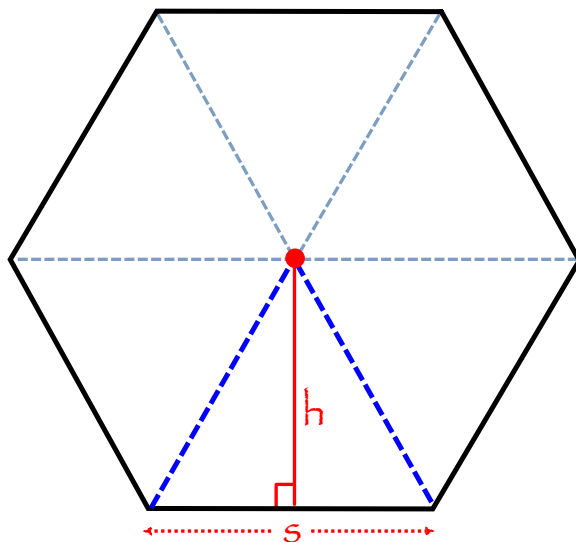
Area of a general regular polygon



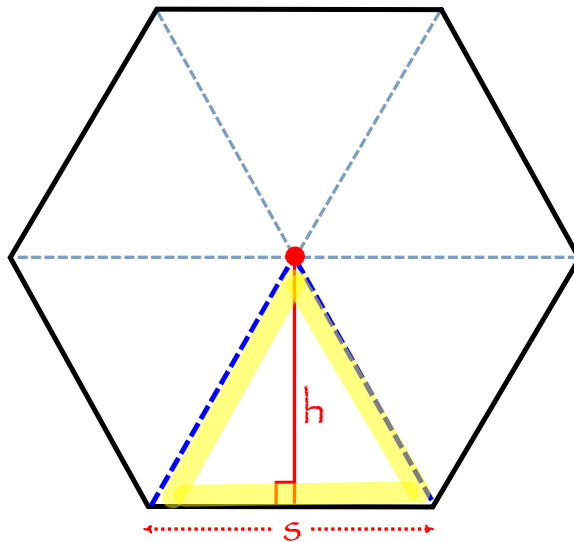
Area of a general regular polygon



Area of a general regular polygon

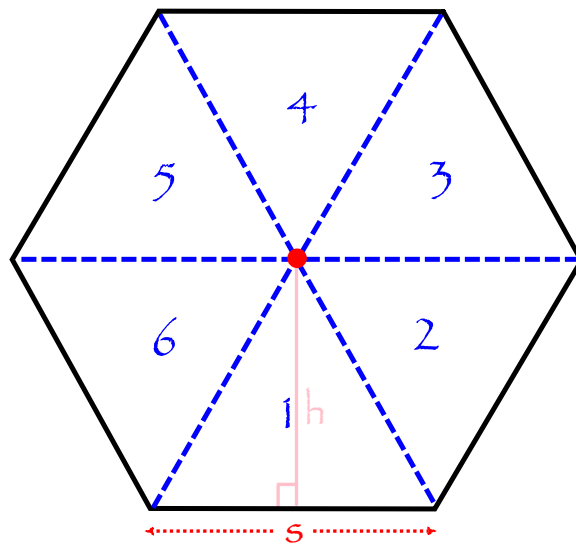


Area of a general regular polygon



$$A_{\triangle} = \frac{1}{2} s h$$

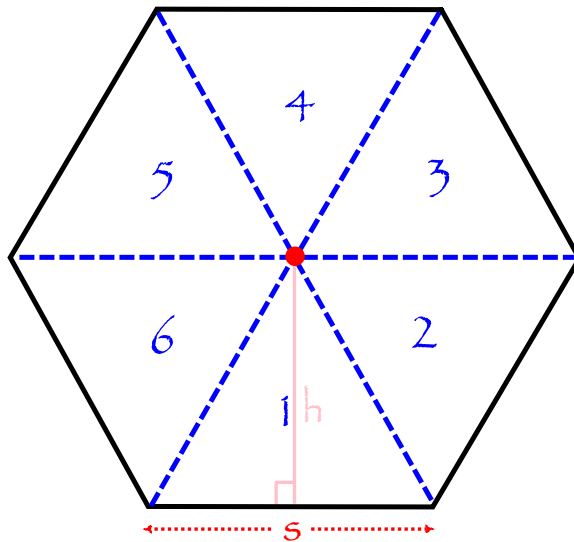
Area of a general regular polygon



$$A_{\triangle} = \frac{1}{2} s h$$

Area of a general regular polygon

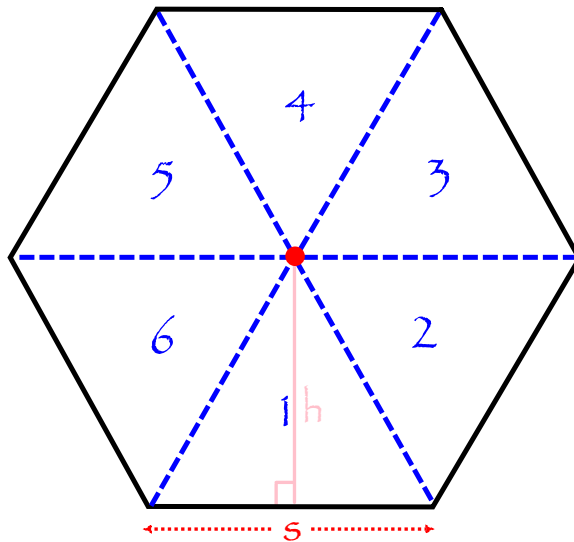
for an n-gon: $A_{\text{poly}} = n \left(\frac{1}{2} s h \right)$



$$A_{\triangle} = \frac{1}{2} s h$$

Area of a general regular polygon

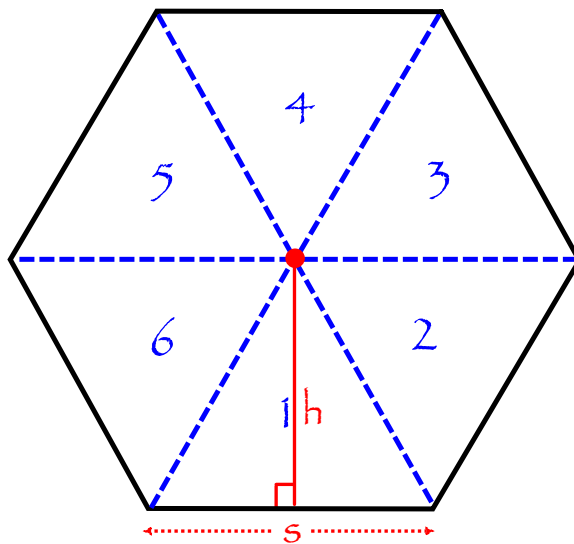
for an n-gon: $A_{\text{poly}} = n \left(\frac{1}{2} s h \right) \dots \text{Perim} = n * s$



$$A_{\bullet} = \frac{1}{2} s h$$

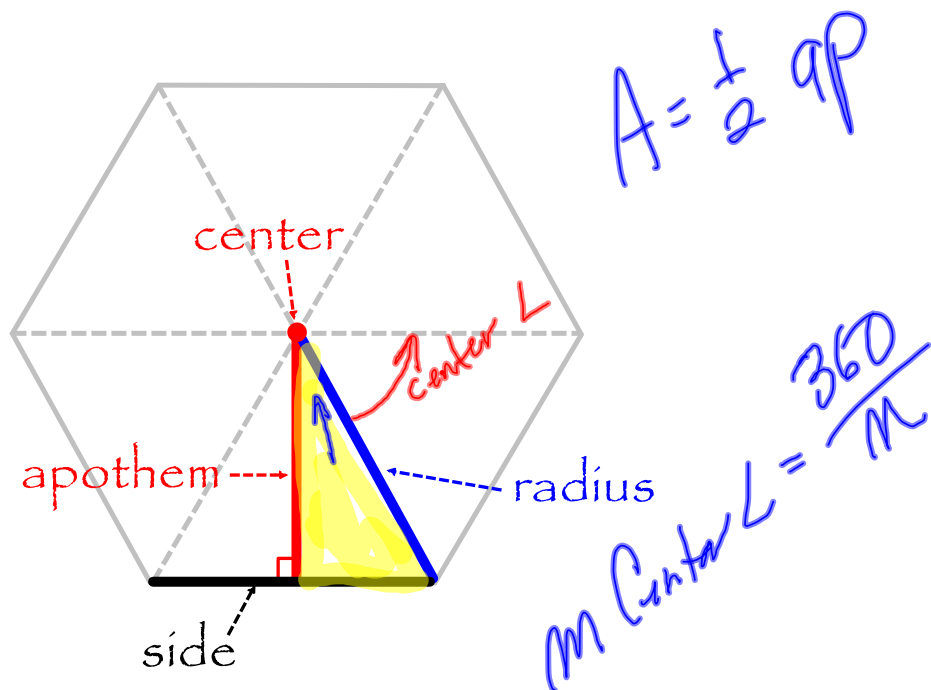
Area of a general regular polygon

for an n-gon: $A_{\text{poly}} = \frac{1}{2} p h$ (where $p = n * s$)

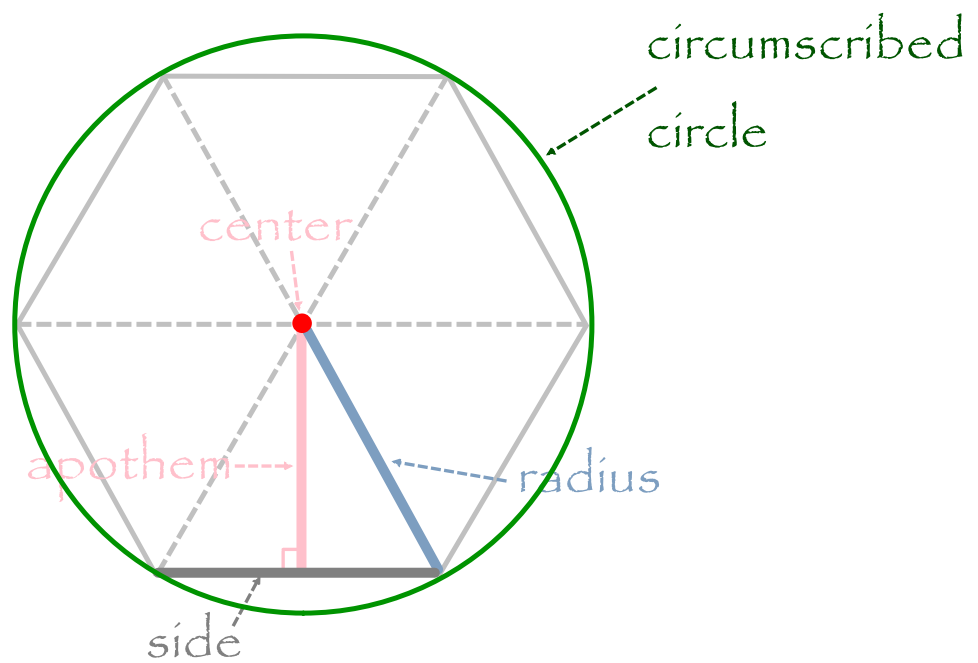


$$A_{\bullet} = \frac{1}{2} s h$$

Parts of a general regular polygon



Parts of a general regular polygon



Thm 7-12 Area of a regular polygon

for an n-gon: $A_{\text{poly}} = \frac{1}{2} ap$

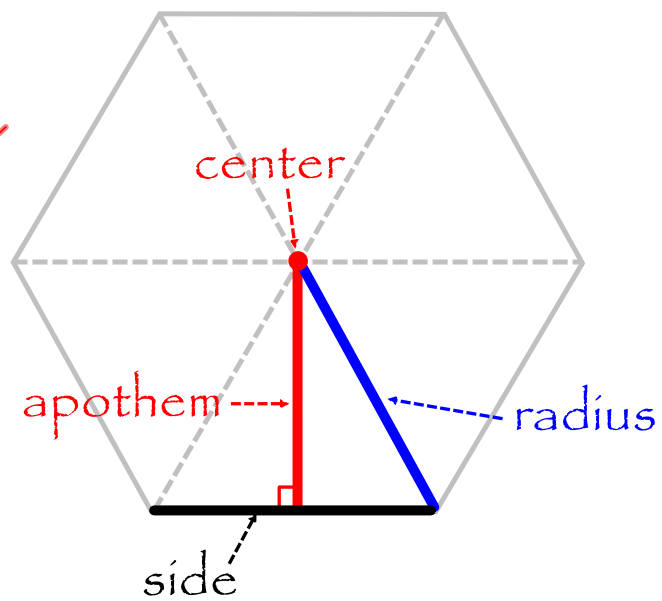
where $p = n \cdot s$

s = side length

n = # sides

p = perimeter

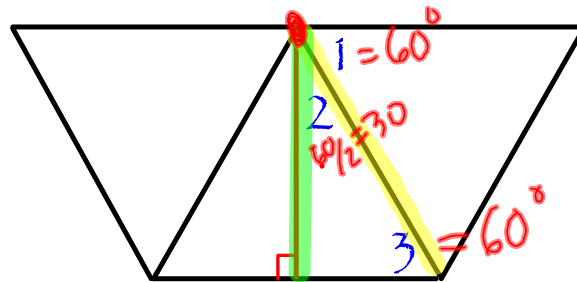
A_{poly} = Area of polygon



Example 1

A portion of a regular hexagon has apothem and radii drawn.
Find measure of each numbered angle.

$$N = 6 \quad \frac{360}{6} = 60$$
$$m \text{ Center } \angle = 60$$





Example 2

Find the area reg poly w/ 20

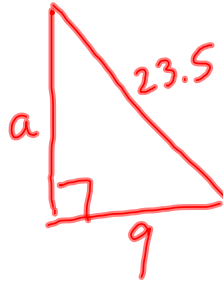
12 in sides and apothem = 37.9 in

$$\begin{aligned} n &= 20 \\ s &= 12 \\ a &= 37.9 \end{aligned} \quad \rightarrow p = 12 \cdot 20 = 240$$
$$\begin{aligned} A &= \frac{1}{2} ap \\ &= \frac{1}{2} (37.9)(240) \\ &= 4548 \end{aligned}$$

Example 3

A library is a reg octagon with
18ft sides and radius = 23.5ft.
Find area of library to nearest 10ft.

$n = 8$
 $s = 18$
 $a = ? = 21.71$
 $p = 8 \cdot 18 = 144$



$A = \frac{1}{2} ap = \frac{1}{2} (21.71)(144)$
 $= 1563.12$
 ≈ 1560

$a^2 + 9^2 = 23.5^2$
 $a^2 = 23.5^2 - 9^2$
 $= 471.25$
 $a = 21.71$

~~1013~~ → 1010
958 → 960

Example 4

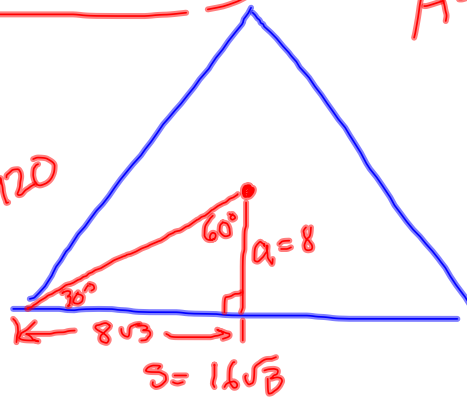
Find area of equilateral Δ with apothem 8cm. Determine answer in simplest radical form but enter answer in clicker rounded to 10th.

$$n = 3$$
$$S = ? = 16\sqrt{3}$$

$$a = 8$$

$$m \text{ Center } L = \frac{360}{3} = 120$$

$$p = n \cdot S = 3 \cdot 16\sqrt{3} = 48\sqrt{3}$$



$$A = \frac{1}{2} a p$$
$$= \frac{1}{2} (8) (48\sqrt{3})$$
$$= 4 \cdot 48\sqrt{3}$$
$$= 332.55$$
$$\approx 332.6$$

L7-5 HW Problems

Pg 382 #1-21 odd, 25, 27-31, 33, 35-40