9.3 PRACTICE

Find the area of each. Label you answer!

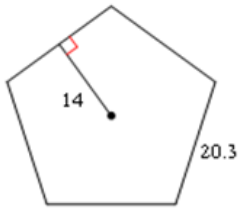
1. Nonagon
Apothem = 14 cm
Side = 8 cm

9-gon
$A = \frac{1}{2}(14)(72)$
$p = 8 \cdot 9 = 72$
$504\ cm^2$

2. Dodecagon
Apothem = 8.5 in
Side = 12.2 in

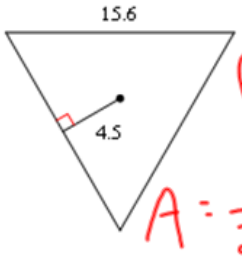
12-gon
$A = \frac{1}{2}(8.5)(146.4)$
$p = 12.2(12) = 146.4$
$622.2\ in^2$

3.



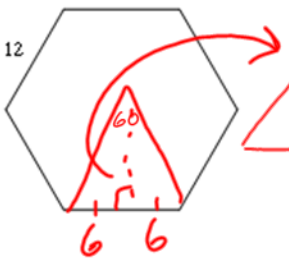
$a = 14$
$p = 5(20.3) = 101.5$
$A = \frac{1}{2}(14)(101.5)$
$A = 710.5\ units^2$

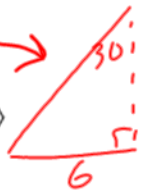
4.



$a = 4.5$
$p = 3(15.6) = 46.8$
$A = \frac{1}{2}(4.5)(46.8)$
$A = 105.3\ units^2$

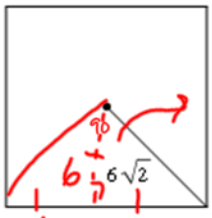
5. Central Angle = 60





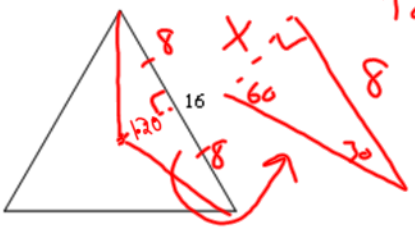
$\tan 30 = \frac{6}{x}$
$x \tan 30 = 6$
$x = \frac{6}{\tan 30} = 10.4$
$A = \frac{1}{2}(10.4)(72)$
$374.4\ units^2$
$p = 6 \cdot 12 = 72$
$a = 10.4$

6. Central Angle = 90



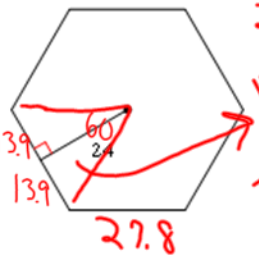
$\sin 45 = \frac{x}{6\sqrt{2}}$
$x = 6\sqrt{2} \sin 45$
$x = 6$
$A = \frac{1}{2}(6)(48)$
$144\ units^2$
$a = 6$
$p = 4 \cdot 12 = 48$

7. Central Angle = 120



$\tan 30 = \frac{x}{8}$
$x = 8 \tan 30$
$x = 4.6$
$A = \frac{1}{2}(4.6)(48)$
$110.4\ units^2$
$a = 4$
$p = 3 \cdot 16 = 48$

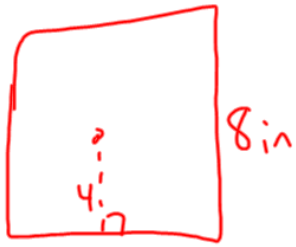
8. Central Angle = 60



$\tan 30 = \frac{x}{24}$
$x = 24 \tan 30$
$x = 13.9$
$A = \frac{1}{2}(24)(166.8)$
$2001.6\ units^2$
$a = 24$
$p = 6(27.8) = 166.8$

Draw the following. Find the area. Label your answer!

9. A square with apothem of 4 in and perimeter of 32 in.



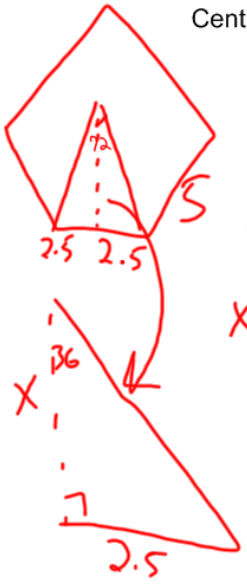
side $= \frac{32}{4} = 8$

$A = \frac{1}{2}(4)(32)$

$A = 64\ in^2$

10. A regular pentagon with each side of 5 cm.

Central Angle $= \frac{360}{5} = 72$



$\tan 36 = \frac{2.5}{x}$

$x \tan 36 = 2.5$

$x = \frac{2.5}{\tan 36} = 3.44$

$a = 3.44$

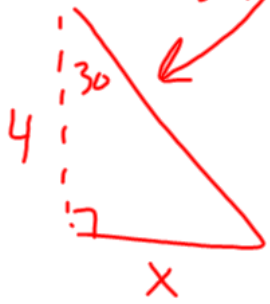
$p = 5 \cdot 5 = 25$

$A = \frac{1}{2}(3.44)(25)$

$43\ cm^2$

11. A regular hexagon with an apothem of 4 feet.

Central Angle = 60



$\tan 30 = \frac{x}{4}$

$x = 4 \tan 30$

$x = 2.3$

$A = \frac{1}{2}(4)(27.6)$

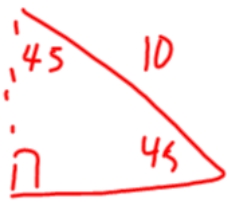
$a = 4$

$p = 6(4.6) = 27.6$

$55.2\ ft^2$

12. A square with radius 10 m.

Central Angle = 90



$\sin 45 = \frac{x}{10}$

$x = 10 \sin 45$

$x = 7.07$

$a = 7.07$

$p = 4(14.14)$

$A = \frac{1}{2}(7.07)(56.56)$

$199.9\ m^2$