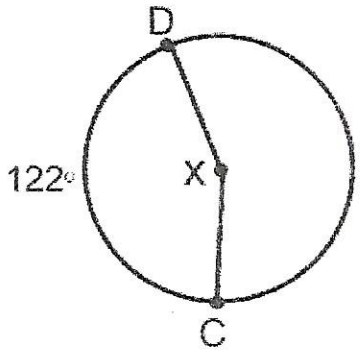


Name: Key  
 Date: \_\_\_\_\_ Period: \_\_\_\_\_

SECONDARY MATH II  
 Module 7 Test Review: Circles

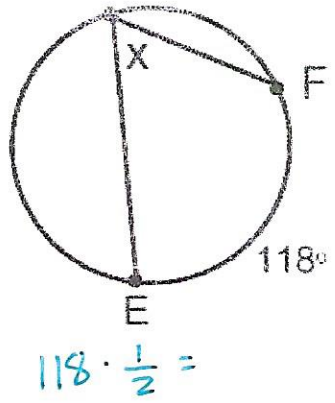
Directions: Show ALL work. Round any decimals to one decimal place, unless otherwise stated.  
 For 1-3: Determine what x equals in each circle below.

1.



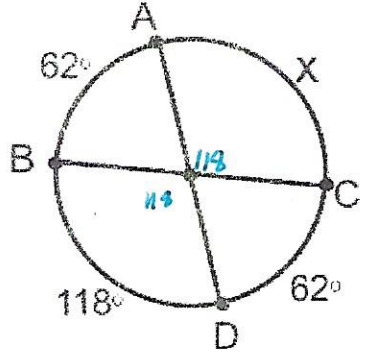
$x = 122^\circ$

2.



$x = 59^\circ$

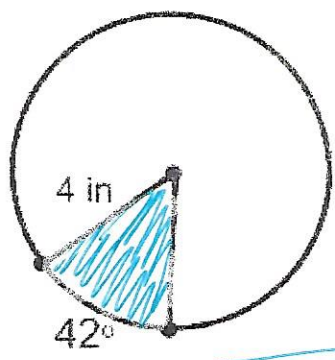
3.



$x = 118^\circ$

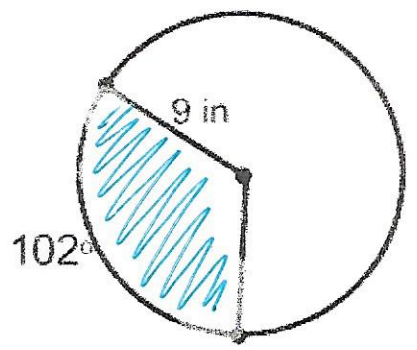
For 4-5: Find the area of the shaded sector below using the area of a sector formula,  $A = \frac{\theta}{360} (\pi r^2)$ .

4.



$A = \frac{42}{360} (\pi 4^2) = 5.86 = 5.9 \text{ in}^2$

5.



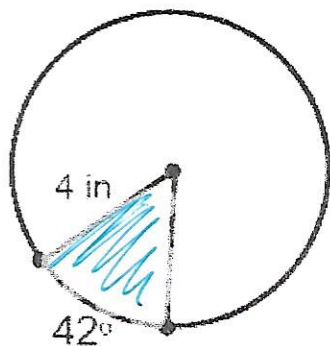
$A = \frac{102}{360} (\pi 9^2) = 72.099 = 72.1 \text{ in}^2$

$$s = \frac{\theta}{360} (2\pi r)$$

$$s = \frac{\theta}{360} (\pi r^2)$$

For 6-7: Find the arc length of the shaded sector below using the arc length formula,  $s = \frac{\theta}{360} (2\pi r)$ .

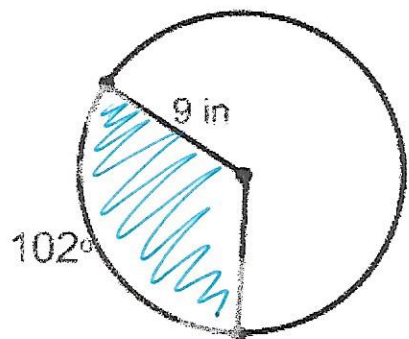
6.



$$s = \frac{42}{360} (2\pi 4) = 2.93$$

$$= \boxed{2.9 \text{ in}}$$

7.



$$s = \frac{102}{360} (2\pi 9) = 16.02$$

$$= \boxed{16.0 \text{ in}}$$

For 8-10: Convert each angle measure from degrees to radians. Round your answer to three decimal places if necessary. Use either  $\frac{\pi}{180^\circ}$  or  $\frac{180^\circ}{\pi}$  to convert.

8.  $75^\circ$

$$\frac{75^\circ}{1} \cdot \frac{\pi \text{ rad}}{180^\circ} = \frac{75\pi}{180} \text{ rad.}$$

$$= \boxed{1.309 \text{ radians}}$$

9.  $112^\circ$

$$\frac{112^\circ}{1} \cdot \frac{\pi \text{ rad}}{180^\circ} = \frac{112\pi}{180} \text{ rad.}$$

$$= \boxed{1.955 \text{ radians}}$$

10.  $22^\circ$

$$\frac{22^\circ}{1} \cdot \frac{\pi \text{ rad}}{180^\circ} = \frac{22\pi}{180} \text{ rad.}$$

$$= \boxed{0.384 \text{ radians}}$$

For 11-13: Convert each angle measure from radians to degrees. Round your answer to one decimal place if necessary. Use either  $\frac{\pi}{180^\circ}$  or  $\frac{180^\circ}{\pi}$  to convert.

11.  $\frac{\pi}{6}$

$$\frac{\pi \text{ rad}}{6} \cdot \frac{180^\circ}{\pi \text{ rad}} = \frac{180^\circ}{6}$$

$$= \boxed{30^\circ}$$

12.  $\frac{2\pi}{3}$

$$\frac{2\pi \text{ rad}}{3} \cdot \frac{180^\circ}{\pi \text{ rad}} = \frac{2 \cdot 180^\circ}{3}$$

$$= \boxed{120^\circ}$$

13.  $\frac{\pi}{9}$

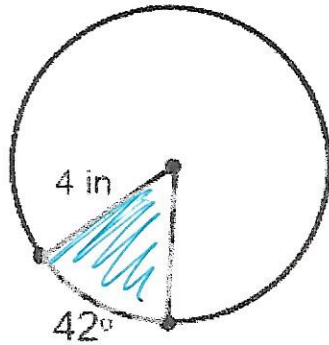
$$\frac{\pi \text{ rad}}{9} \cdot \frac{180^\circ}{\pi \text{ rad}} = \frac{180^\circ}{9}$$

$$= \boxed{20^\circ}$$

$$s = \frac{\theta}{360} (2\pi r)$$

For 6-7: Find the arc length of the shaded sector below using the arc length formula,  $s = \frac{\theta}{360} (2\pi r)$ .

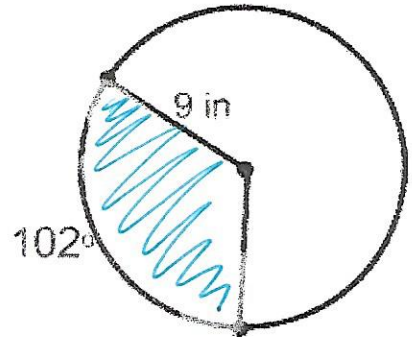
6.



$$s = \frac{42}{360} (2\pi 4) = 2.93$$

$$= \boxed{2.9 \text{ in}}$$

7.



$$s = \frac{102}{360} (2\pi 9) = 16.02$$

$$= \boxed{16.0 \text{ in}}$$

For 8-10: Convert each angle measure from degrees to radians. Round your answer to three decimal places if necessary. Use either  $\frac{\pi}{180^\circ}$  or  $\frac{180^\circ}{\pi}$  to convert.

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$$\frac{75^\circ}{1} \cdot \frac{\pi \text{ rad.}}{180^\circ} = \frac{75\pi}{180} \text{ rad.}$$

$$= \boxed{1.309 \text{ radians}}$$

9.  $112^\circ$

$$\frac{112^\circ}{1} \cdot \frac{\pi \text{ rad.}}{180^\circ} = \frac{112\pi}{180} \text{ rad.}$$

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$$\frac{22^\circ}{1} \cdot \frac{\pi \text{ rad.}}{180^\circ} = \frac{22\pi}{180} \text{ rad.}$$

$$= \boxed{0.384 \text{ radians}}$$

For 11-13: Convert each angle measure from radians to degrees. Round your answer to one decimal place if necessary. Use either  $\frac{\pi}{180^\circ}$  or  $\frac{180^\circ}{\pi}$  to convert.

11.  $\frac{\pi}{6}$

$$\frac{\frac{\pi \text{ rad.}}{6}}{\frac{\pi \text{ rad.}}{180^\circ}} = \frac{180^\circ}{6}$$

$$= \boxed{30^\circ}$$

12.  $\frac{2\pi}{3}$

$$\frac{\frac{2\pi \text{ rad.}}{3}}{\frac{\pi \text{ rad.}}{180^\circ}} = \frac{2 \cdot 180^\circ}{3}$$

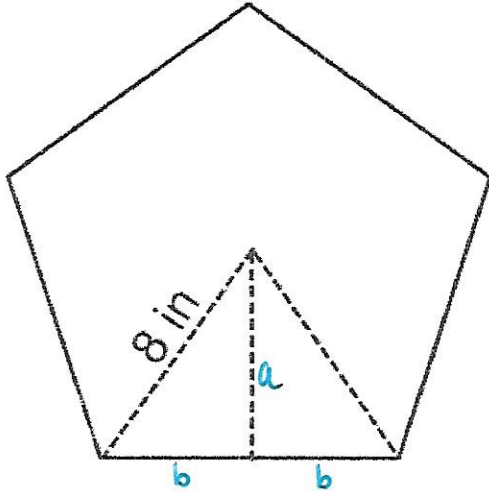
$$= \boxed{120^\circ}$$

13.  $\frac{\pi}{9}$

$$\frac{\frac{\pi \text{ rad.}}{9}}{\frac{\pi \text{ rad.}}{180^\circ}} = \frac{180^\circ}{9}$$

$$= \boxed{20^\circ}$$

For 14-15: Use the regular pentagon below to answer the questions. Formulas:



Area of a regular polygon:

$$A = \frac{1}{2} Pa, \text{ where}$$

$P$  = perimeter of polygon and

$a$  = apothem

$$\sin \theta = \frac{\text{opposite}}{\text{hypotenuse}}$$

$$\cos \theta = \frac{\text{adjacent}}{\text{hypotenuse}}$$

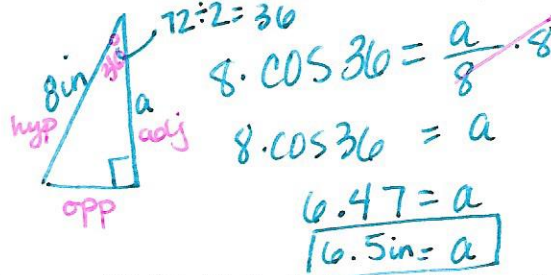
$$\tan \theta = \frac{\text{opposite}}{\text{adjacent}}$$

Pythagorean Theorem:  $a^2 + b^2 = c^2$

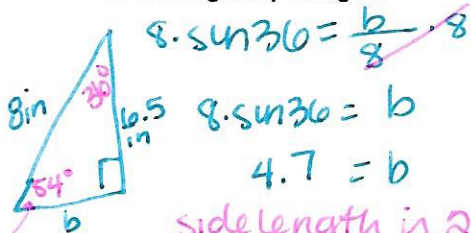
14. What is the measure of one of the 5 central angles of this regular pentagon?

$$\frac{360^\circ}{5} = \boxed{72^\circ}$$

15. What is the measure of the apothem?



16. What is the measure of one of the 5 side lengths of this regular pentagon?



17. What is the Perimeter of this regular pentagon?

$$P = 5(9.4)$$

$$P = \boxed{47 \text{ in}}$$

18. What is the area of this regular pentagon?

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

$$A = \frac{1}{2} (47)(6.5)$$

$$A = \boxed{152.75 \text{ in}^2}$$

(152.8 in<sup>2</sup>)  
is OK!

180 - 90 - 36 = 54

$$\boxed{9.4 \text{ in}}$$