

Name: Key

Hour: _____

Arcs and Chords Homework

Directions: Each regular polygon is inscribed in a circle. Determine the measure of each arc that corresponds to a side of the polygon.

1. Hexagon

$$\frac{360}{6} = 60^\circ$$

2. Pentagon

$$72^\circ$$

3. Triangle

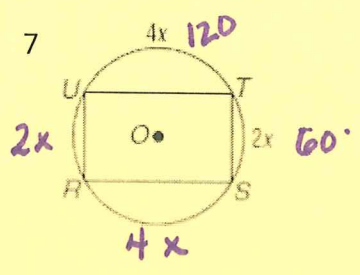
$$120^\circ$$

4. Square = 90°

5. Octagon = 45°

6. 36-gon = 10°

Directions: Determine the measure of each arc of the circle circumscribed about the polygon.



$$4x + 4x + 2x + 2x = 360$$

$$12x = 360$$

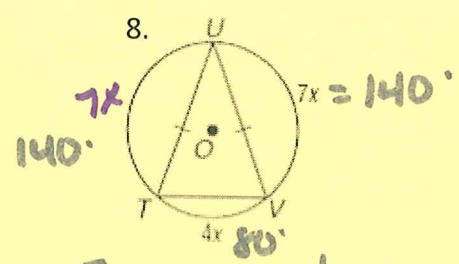
$$x = 30^\circ$$

$$m\widehat{UT} = \underline{120^\circ}$$

$$m\widehat{TS} = \underline{60^\circ}$$

$$m\widehat{RS} = \underline{120^\circ}$$

$$m\widehat{RU} = \underline{60^\circ}$$



$$7x + 7x + 4x = 360$$

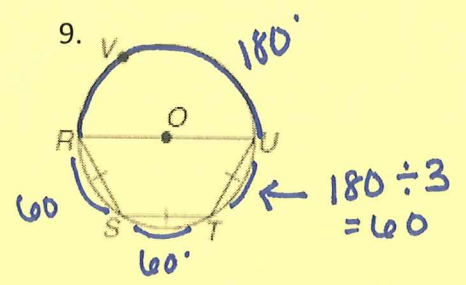
$$18x = 360$$

$$x = 20$$

$$m\widehat{UV} = \underline{140^\circ}$$

$$m\widehat{TV} = \underline{80^\circ}$$

$$m\widehat{UT} = \underline{140^\circ}$$



$$180 \div 3 = 60$$

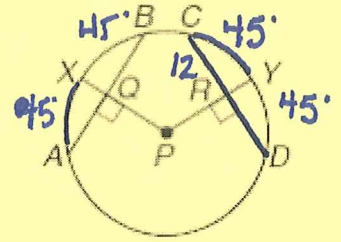
$$m\widehat{UT} = \underline{60^\circ}$$

$$m\widehat{TS} = \underline{60^\circ}$$

$$m\widehat{SR} = \underline{60^\circ}$$

$$m\widehat{RVU} = \underline{180^\circ}$$

10. In Circle P, $CD=24$ and $m\widehat{CY} = 45$. Find each measure below.



a) $AQ = 12$

b) $RC = 12$

c) $QB = 12$

d) $AB = 24$

e) $m\widehat{DY} = 45^\circ$

f) $m\widehat{AB} = 90^\circ$

g) $m\widehat{AX} = 45^\circ$

h) $m\widehat{XB} = 45^\circ$

i) $m\widehat{CD} = 90^\circ$

11. In Circle G, $DG = GU$ and $AC = RT$. Find each measure below.

a) TU

b) $TR = 4 + 4 = 8$

c) $m\widehat{TS}$

$$3^2 + x^2 = 5^2$$

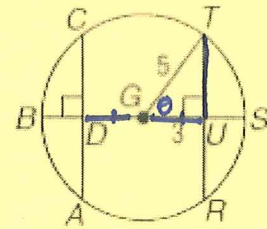
$$x^2 = 16$$

$$\boxed{x = 4}$$

Find θ

$$\cos^{-1}\left(\frac{3}{5}\right)$$

$$\theta = 53^\circ$$

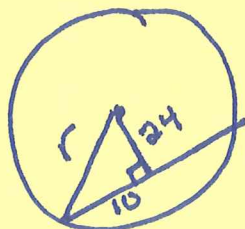


d) $CD = 4$

e) $GD = 3$

f) $m\widehat{AB} = 53^\circ$

12. A chord of a circle 20 inches long is 24 inches from the center of a circle. Find the length of the radius. (HINT: Draw the circle)



$$24^2 + 10^2 = r^2$$

$$\sqrt{676} = r$$

$$\boxed{26 = r}$$

$$r = 26 \text{ inches}$$