

Key ☺

Practice Examples:

1. If the diameter of a circle is 6, find the radius and circumference.

Review of Content: radius = $1/2$ diameter and $C = d\pi$ or $C = 2\pi r$

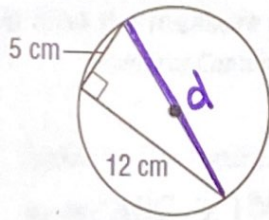
$r = \frac{1}{2} \cdot 6$
 radius = 3 units

$C = 6\pi$ units

If we wanted area:
 $A = \pi r^2$
 $A = \pi 3^2$
 $A = 9\pi$ units²

2. Find the circumference of the circle.

Review of Content: radius = $1/2$ diameter and $C = d\pi$ or $C = 2\pi r$

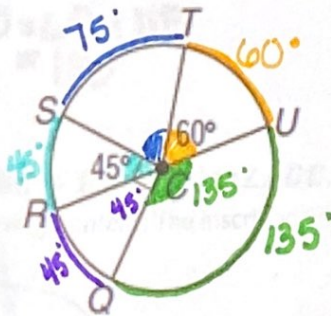


Find d:
 $5^2 + 12^2 = d^2$
 $169 = d^2$
 $13\text{ cm} = d$

$C = 13\pi$ cm

3. Find the measure of each angle or arc.

Review of Content: Central angles are equal to the measure of the arc.

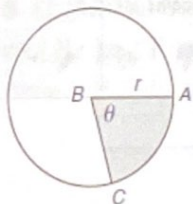


$m\angle SOT = 75^\circ$
 $45 + \angle SOT + 60 = 180$
 linear pairs are suppl.
 $m\angle QUT = 135$
 $45 + 45 + 75 = \angle QCT$
 $165 = m\angle QCT$

two points mean this is a minor arc less than 180°
 $m\widehat{QU} = 135$
 3 pts means it is a major arc more than 180°
 $45 + 45 + 75 + 60 = m\widehat{QTU}$
 $225 = m\widehat{QTU}$
 $m\widehat{RQU} \leftarrow$ Semi circle!!
 $m\widehat{RQU} = 180^\circ$

4. The diameter of circle O is 24m long. Find the length of \widehat{DE} if $m\angle EOD = 120^\circ$. Round to the nearest thousandth.

Review of Content: Arc Length: $L = \frac{\theta}{360} C$, $\theta =$ central angle



$C = d\pi$

arc measure \neq arc length

$L = \frac{\theta}{360} \cdot C$
 $C = 24\pi$

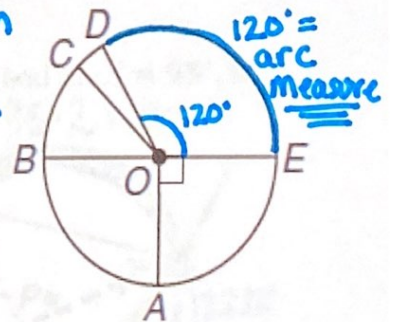
$\theta =$ central $\angle = 120^\circ$

$L = \frac{120}{360} \cdot 24\pi$

$L = 8\pi$ m exact

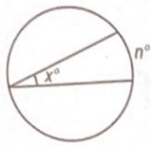
$L \approx 25.133$ m

fraction of the Circumf.



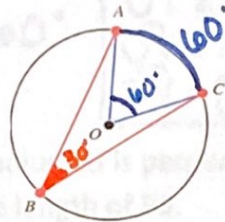
5. Find the measure of each angle or arc.

Review of Content: The inscribed angle is half the measure of the central angle or arc.



Inscribed Angle

$$x = \frac{1}{2}n$$



If $m\angle COA = 60^\circ$, find $m\angle ABC$ and $m\widehat{AC}$.

$$\angle ABC = 30^\circ = \frac{1}{2} \text{ Central } \angle \text{ or arc.}$$

$$m\widehat{AC} = 60^\circ = \text{central } \angle$$

6. Find the measure of each angle or arc.

Review of Content: The inscribed angle is half the measure of the central angle or arc.

Refer to the figure. Find each measure.

a. $m\angle ABC = \frac{1}{2} 180 = 90^\circ$

c. $m\widehat{AD} = 180 - 118 = 62^\circ$

e. $m\angle BCA = \frac{1}{2} 112 = 56^\circ$

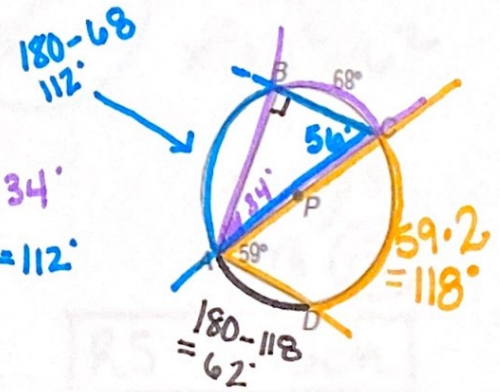
g. $m\widehat{BCD} = 68 + 118 = 186^\circ$

b. $m\widehat{CD} = 59.2$

d. $m\angle BAC = \frac{1}{2} 68 = 34^\circ$

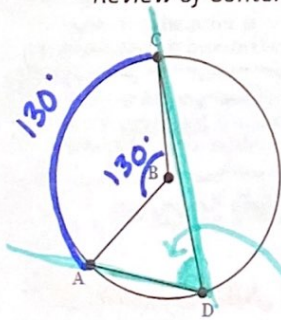
f. $m\widehat{AB} = 180 - 68 = 112^\circ$

h. $m\widehat{BDA} = 360 - 112 = 248^\circ$



7. If $m\angle ABC = 130^\circ$, find $m\angle ADC$.

Review of Content: The inscribed angle is half the measure of the central angle or arc.



$$\frac{1}{2} 130 = 65^\circ$$

$$m\angle ADC = 65^\circ$$

8. Quadrilateral RSTU is inscribed in circle P such that $m\widehat{STU} = 220^\circ$ and $m\angle S = 95^\circ$, find $m\angle R$, $m\angle T$, $m\angle U$, $m\widehat{RUT}$, $m\widehat{SRU}$, and $m\widehat{RST}$.

Review of Content: If a quadrilateral is inscribed in a circle, then its opposite angles are supplementary.

$$\angle R + \angle T = 180^\circ$$

$$\angle S + \angle U = 180^\circ$$

$$\angle R = \frac{1}{2} 220 = 110^\circ$$

$$\angle T \Rightarrow \angle T + 110 = 180$$

$$\angle T = 70^\circ$$

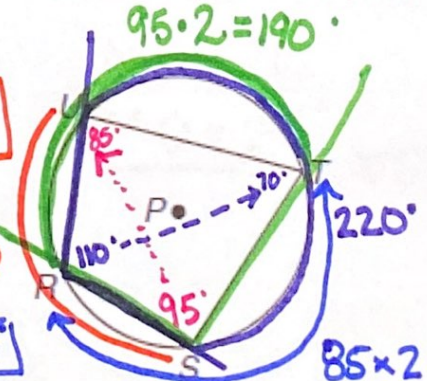
$$\angle U \Rightarrow \angle S + \angle U = 180$$

$$\angle U = 85^\circ$$

$$m\widehat{RUT} = 190^\circ$$

$$m\widehat{RST} = 170^\circ$$

$$m\widehat{SRU} = 140^\circ$$



$$85 \times 2 = 170^\circ$$

9. Determine the measure of each arc.

Review of Content: In a circle or in congruent circles, two minor arcs are congruent if and only if their corresponding chords are congruent.

$$7x + 7x + 4x = 360^\circ$$

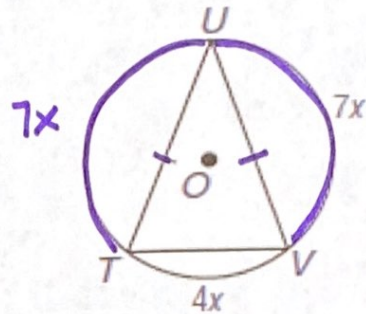
$$18x = 360$$

$$x = 20^\circ$$

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

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

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



10. Circle R has a radius of 16cm. Radius RU is perpendicular to TV, TV = 22cm.

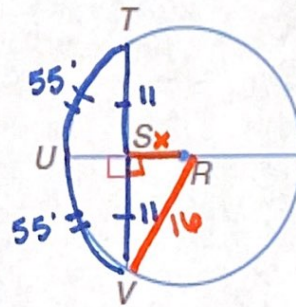
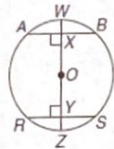
If $m\widehat{TV} = 110^\circ$ find $m\widehat{UV}$, and the length of RS.

Review of Content:

Diameters and Chords

In a circle, if a diameter is perpendicular to a chord, then it bisects the chord and its arc.

- In a circle or in congruent circles, two chords are congruent if and only if they are equidistant from the center.



you can always draw in a radius!

$$x^2 + 11^2 = 16^2$$

$$x^2 = 135$$

$$x = \sqrt{135}$$

$$3\sqrt{15}$$

$$RS = 3\sqrt{15} \text{ cm}$$

$$m\widehat{UV} = \frac{1}{2} 110^\circ = 55^\circ$$

$$m\widehat{UV} = 55^\circ$$

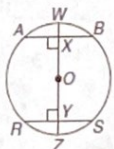
11. Chords MO and PR are equidistant from the center. If the radius is 15m, find MO and PQ.

Review of Content:

Diameters and Chords

In a circle, if a diameter is perpendicular to a chord, then it bisects the chord and its arc.

- In a circle or in congruent circles, two chords are congruent if and only if they are equidistant from the center.



$$\therefore MO \cong PR$$

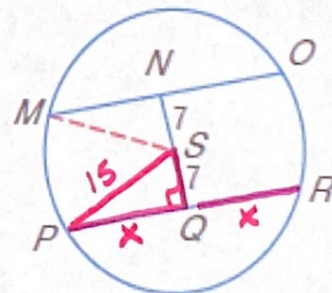
Remember: distance is measured \perp to any line.

$$x^2 + 7^2 = 15^2$$

$$x^2 + 49 = 225$$

$$x = \sqrt{176}$$

$$PQ = \sqrt{176} \text{ m}$$



$$PR = 2x$$

$$PR = 2\sqrt{176} \text{ m}$$

$$MO \cong PR$$

$$MO = 2\sqrt{176} \text{ m}$$