PAP Geometry HW

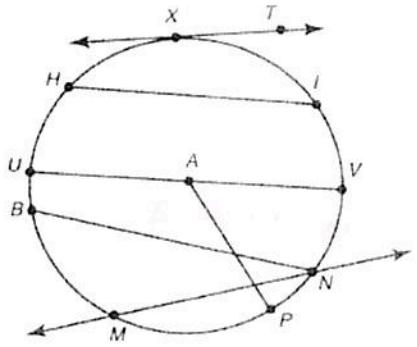
Chapter 11 - Ciicles

Name: Key

Date: _____ Period: _____

11.1 - Intro to Circles

Identify an instance of each term in the diagram.

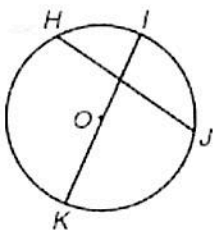


O = multiple options

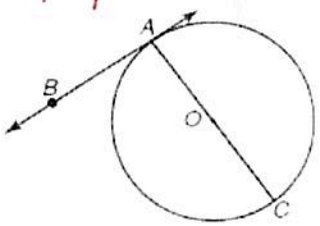
1. center of the circle A
2. chord $\overline{HI}$
3. secant of the circle $\overleftrightarrow{MN}$
4. tangent of the circle $\overleftrightarrow{XT}$
5. point of tangency X
6. central angle $\angle VAP$
7. inscribed angle $\angle BNM$
8. arc $\overset{\frown}{HV}$
9. major arc $\overset{\frown}{HMV}$
10. minor arc $\overset{\frown}{VB}$
11. diameter $\overline{VV}$
12. semicircle $\overset{\frown}{UMV}$

Name the indicated part of each circle

13. O Center

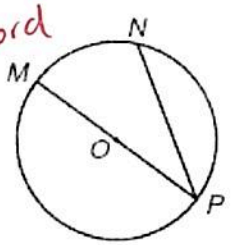


$\overleftrightarrow{AB}$ Tangent

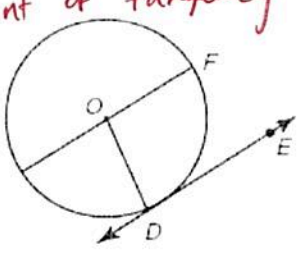


14. $\overline{NP}$ chord

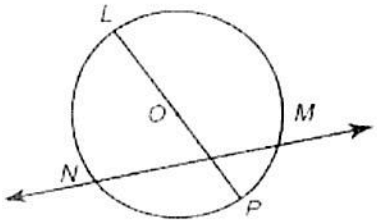
15.



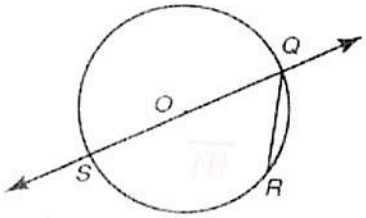
16. D point of tangency



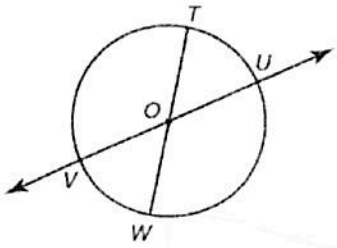
17. $\overline{MN}$ Secant



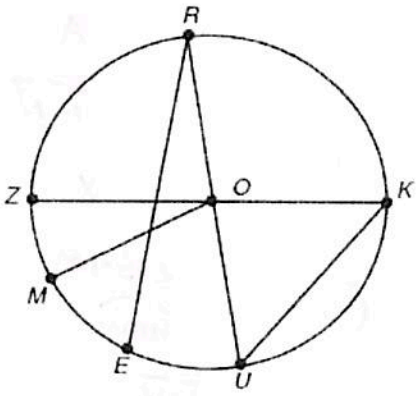
18. $\angle SQR$ Inscribed ∠



19. $\angle TOU$ central ∠



Identify each angle as an inscribed angle or a central angle.



20. $\angle URE$ I

21. $\angle ZOM$ C

22. $\angle KOM$ C

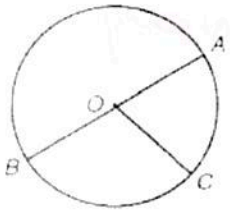
23. $\angle ZKU$ I

24. $\angle MOU$ C

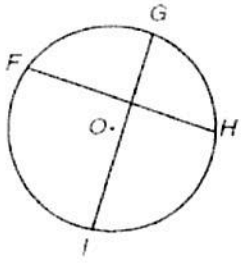
25. $\angle ROK$ C

Classify each arc as a minor arc, major arc, or semicircle.

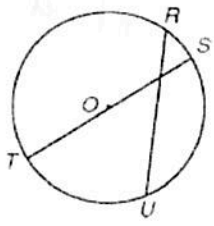
26. $\overset{\frown}{AC}$ Minor



27. $\overset{\frown}{FHI}$ Major



28. $\overset{\frown}{TRS}$ Semi.



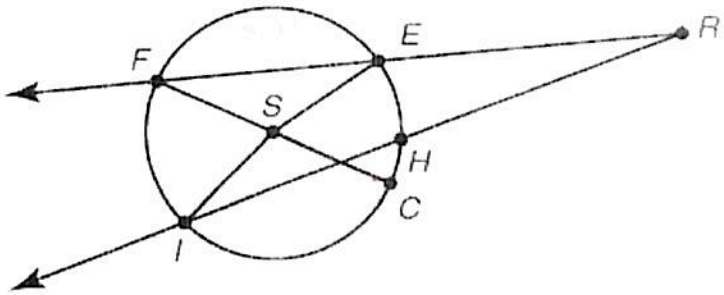
PAP Geometry HW

11.2 – Central Angles, Inscribed Angles, and Intercepted Arcs

Use circle *S* to answer each question

1. Suppose that $m\overset{\frown}{CE} = 59°$. What is $m\overset{\frown}{CFE}$?

121°



2. Suppose that $m\angle CSI = 124°$. What is $m\overset{\frown}{FI}$?

56°

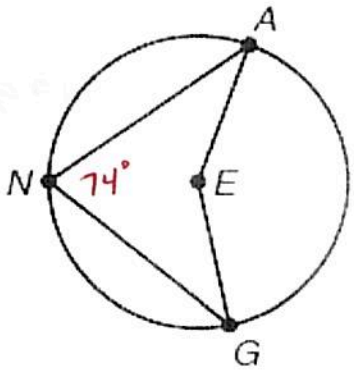
3. Suppose that $m\overset{\frown}{CE} = 55°$. What is $m\angle EFC$?

27.5°

4. Suppose that $m\angle FSI = 71°$. What is $m\overset{\frown}{IC}$?

109°

5. In circle *E* shown, $m\angle ANG = 74°$.



   a. Determine $m\angle AEG$.

148°

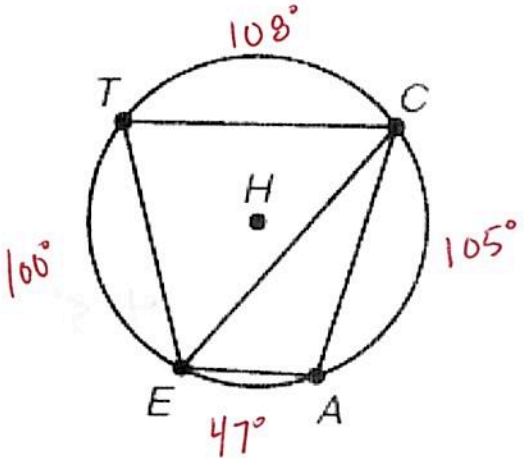
   b. Determine $m\overset{\frown}{ANG}$.

212°

6. In circle *H* shown, $m\overset{\frown}{CA} = 105°$, $m\overset{\frown}{EA} = 47°$, and $m\overset{\frown}{ET} = 100°$.

   a. Determine $m\angle ETC$.

76°



   b. Determine $m\angle TCE$.

50°

   c. Determine $m\angle CAE$.

104°

   d. Determine $m\angle TEA$.

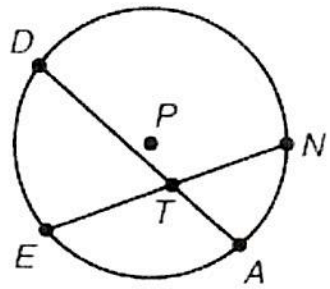
106.5°

PAP Geometry HW

11.3 – Measuring angles Inside and Outside of Circles

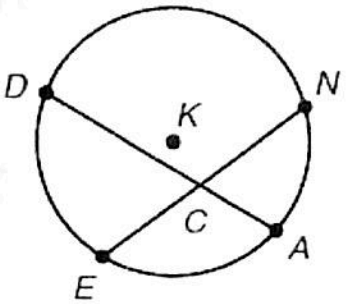
1. In circle P shown, $m\overset{\frown}{DE} = 75°$ and $m\overset{\frown}{NA} = 49°$. Determine $m\angle DTE$.

62°



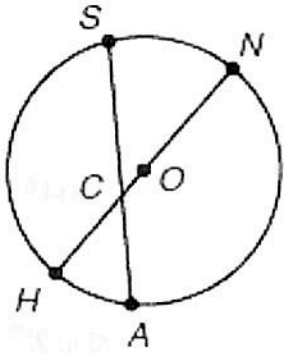
2. In circle K shown, $m\overset{\frown}{DN} = 144°$ and $m\angle NCA = 68°$. Determine $m\overset{\frown}{EA}$.

80°



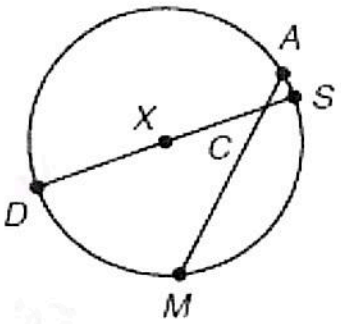
3. In circle O shown, $m\overset{\frown}{SN} = 55°$ and $m\overset{\frown}{HA} = 35°$. Determine $m\angle SCH$.

135°



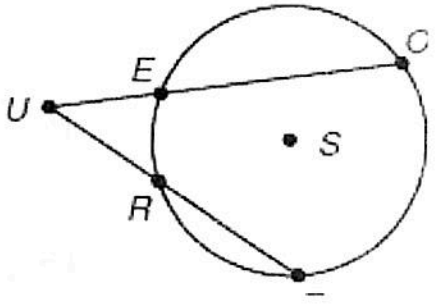
4. In circle X shown, $m\overset{\frown}{AS} = 11°$ and $m\overset{\frown}{MS} = 104°$. Determine $m\angle DCM$.

43.5°



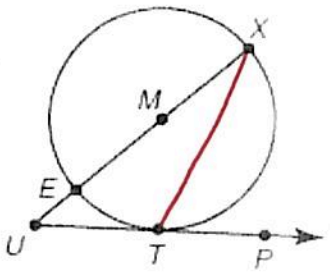
5. In circle S shown, $m\overset{\frown}{ER} = 38°$ and $m\overset{\frown}{OT} = 121°$. Determine $m\angle OUT$.

41.5°



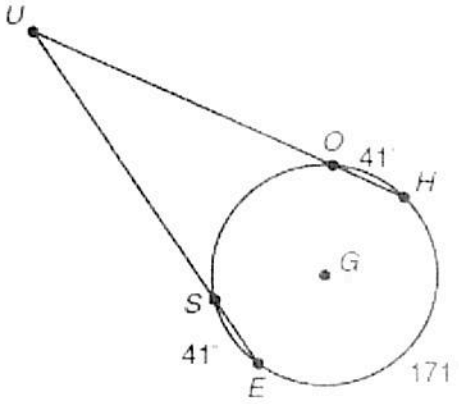
6. In circle M shown, $\overline{XE}$ is a diameter of the circle and $m\overset{\frown}{XT} = 132°$. Draw a chord that connects points X and T. Then determine $m\angle XUT$.

42°



7. In circle G shown, $OH = ES$, $m\overset{\frown}{OH} = 41°$, and $m\overset{\frown}{HE} = 171°$. Determine $m\angle EUH$.

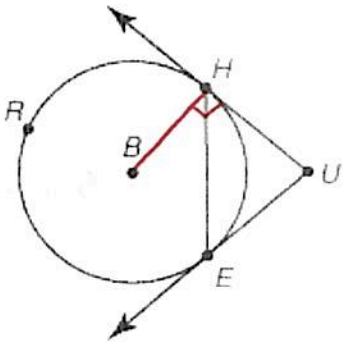
32°



8. In circle B shown, $m\overset{\frown}{HE} = 99°$.

   a. Determine $m\angle HUE$.

81°

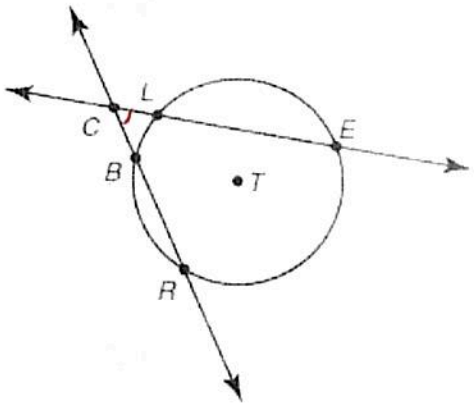


   b. Determine $m\angle BHU$.

90°

9. In circle T shown, $m\angle RCE = 57°$ and $m\overset{\frown}{RE} = 141°$. Determine $m\overset{\frown}{BL}$.

27°



PAP Geometry HW

11.4 – Chords

Match each definition with its corresponding term.

a. If two chords of the same circle or congruent circles are congruent, then their corresponding arcs are congruent.
b. The segments formed on a chord when two chords of a circle intersect
c. If two chords of the same circle or congruent circles are congruent, then they are equidistant from the center of the circle.
d. If two arcs of the same circle or congruent circles are congruent, then their corresponding chords are congruent.
e. If two chords of the same circle or congruent circles are equidistant from the center of the circle, then the chords are congruent.
f. If two chords of a circle intersect, then the product of the lengths of the segments of one chord is equal to the product of the lengths of the segments in the second chord.
g. If a diameter of a circle is perpendicular to a chord, then the diameter bisects the chord and bisects the arc determined by the chord.

G 1. Diameter-Chord Theorem

C 2. Equidistant Chord Theorem

E 3. Equidistant Chord Converse Theorem

A 4. Congruent Chord-Congruent Arc Theorem

D 5. Congruent Chord-Congruent Arc Converse Theorem

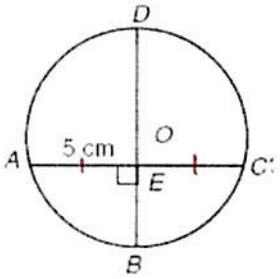
B 6. Segments of a chord

F 7. Segment-Chord Theorem

Determine each measurement.

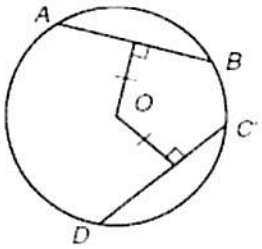
8. If $\overline{BD}$ is a diameter, what is the length of $\overline{EC}$?

5 cm



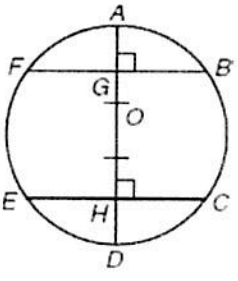
9. If the length of $\overline{AB}$ is 13 millimeters, what is the length of $\overline{CD}$?

13 mm



10. If the length of $\overline{BF}$ is 32 inches, what is the length of $\overline{CH}$?

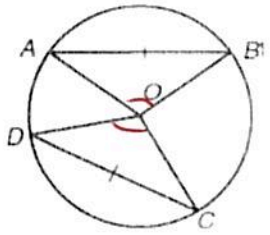
16 in.



PAP Geometry HW

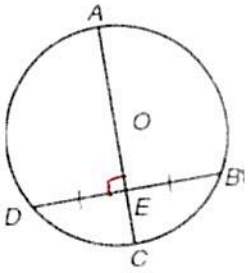
11. If the measure of $\angle AOB = 155°$, what is the measure of $\angle DOC$?

155°



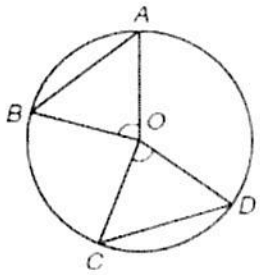
12. If segment $\overline{AC}$ is a diameter, what is the measure of $\angle AED$?

90°



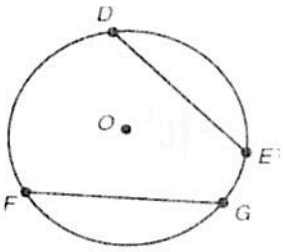
13. If the length of $\overline{AB}$ is 24 centimeters, what is the length of $\overline{CD}$?

24 cm



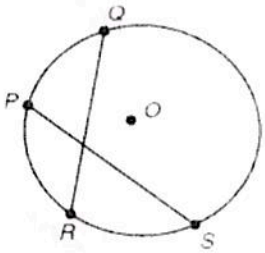
14. If $\overline{DE} = \overline{FG}$, how does the measure of $\widehat{DE}$ and $\widehat{FG}$ compare?

$\widehat{DE} = \widehat{FG}$



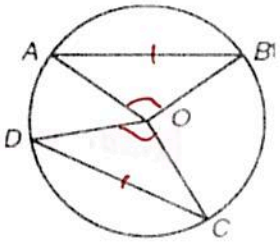
15. If $\overline{QR} = \overline{PS}$, how does the measure of $\widehat{QPR}$ and $\widehat{PRS}$ compare?

$\widehat{QPR} = \widehat{PRS}$



16. If $\angle AOB = \angle DOC$, what is the relationship between $\overline{AB}$ and $\overline{DC}$?

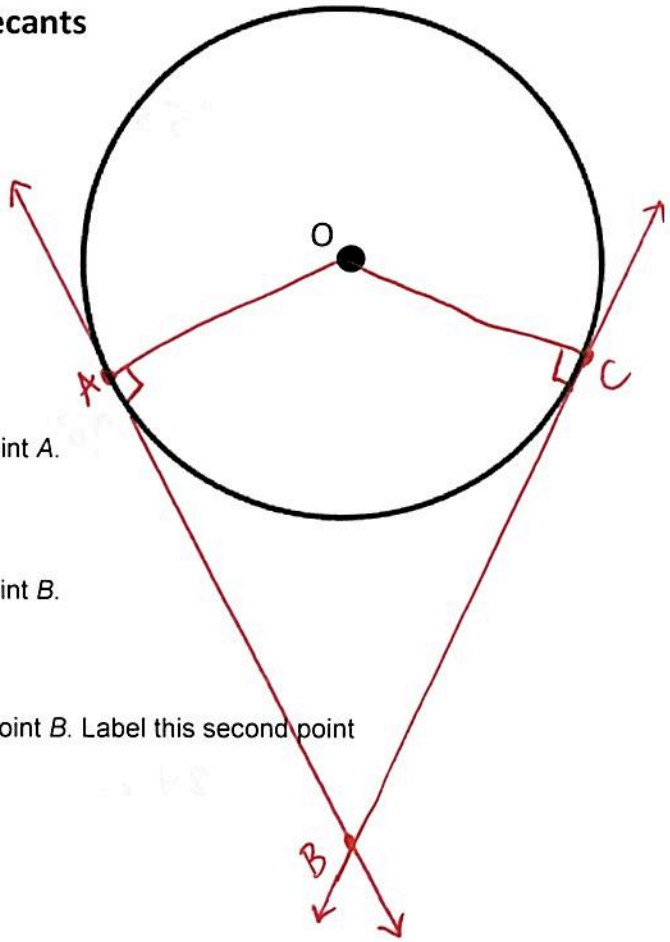
$\overline{AB} = \overline{DC}$



PAP Geometry HW

11.5– Tangents and Secants

1. Use circle *O* to complete parts (a) through (h).



a. Draw a tangent to circle *O*. Label the point of tangency as point *A*.

b. Label another point on the tangent you drew in part (a) as point *B*.

c. Draw a second tangent line to circle *O* that passes through point *B*. Label this second point of tangency as point *C*.

d. Draw the radii $\overline{OA}$ and $\overline{OC}$.

e. What is $m\angle OAB$? Explain your reasoning.

90°

f. What is $m\angle OCB$? Explain your reasoning.

90°

g. Use a protractor to determine the measure of $\angle AOC$.

120°

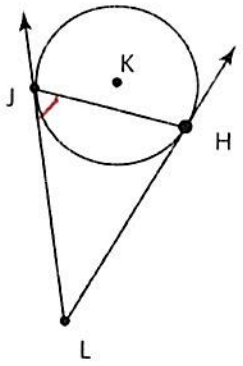
h. What is $m\angle ABC$? Explain your reasoning.

Quadrilateral = 360°

$\angle ABC = 60°$

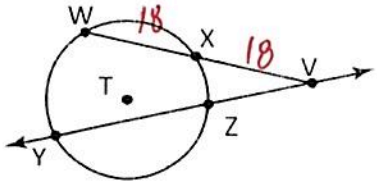
PAP Geometry HW

2. In the figure shown, rays *LJ* and *LH* are tangent to circle *K*, and the measure of angle LJH is 71°.What is the measure of angle JLH?



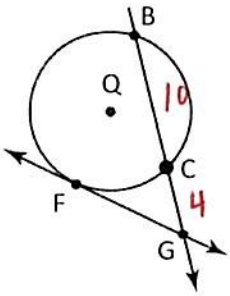
38°

3. In the figure shown, WV = 36 inches, point X is a midpoint of segment WV, and YV = 40 inches. What is YZ?



23.8 in

4. In the figure shown, line *FG* is tangent to circle *Q*, *BC* = 10 feet, and *CG* = 4 feet. What is *FG*?



7.48 ft.