11.1 - Intro to Circles

Identify an instance of each term in the diagram.
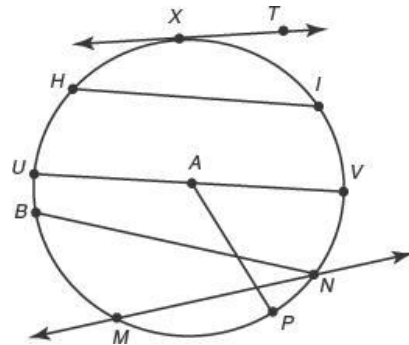
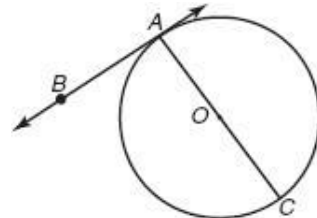**1.** center of the circle   **2.**   chord

3. secant of the circle   **4.**   tangent of the circle

5. point of tangency   **6.**   central angle

7. inscribed angle   **8.**   arc

9. major arc   **10.**   minor arc

11. diameter   **12.**   semicircle

Name the indicated part of each circle
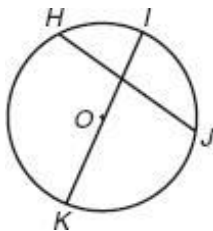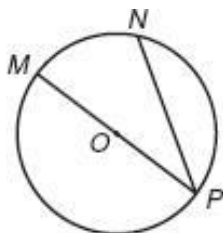
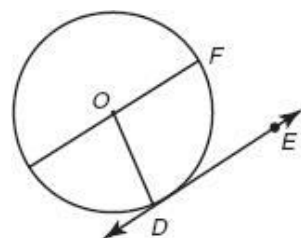13. O $\overleftrightarrow{AB}$
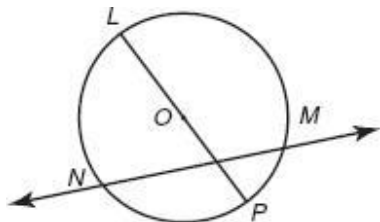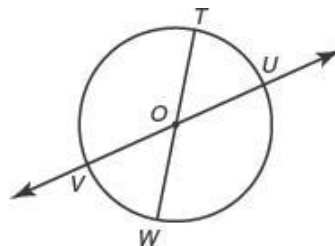
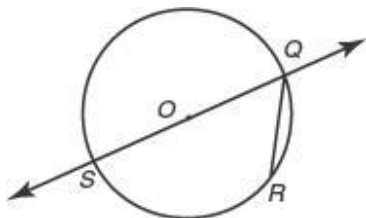14. $\overline{NP}$ 16. D
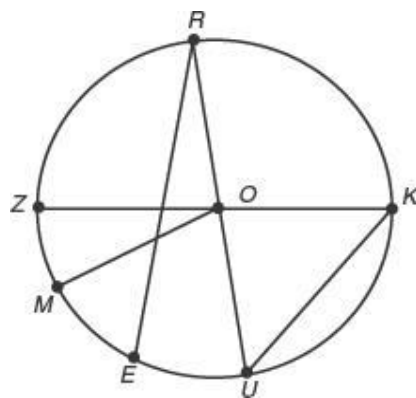
15.

17. $\overleftrightarrow{MN}$

19. ∠TOU

18. ∠SQR

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

20. ∠URE

21. ∠ZOM

22. ∠KOM

23. ∠ZKU

24. ∠MOU

25. ∠ROK

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

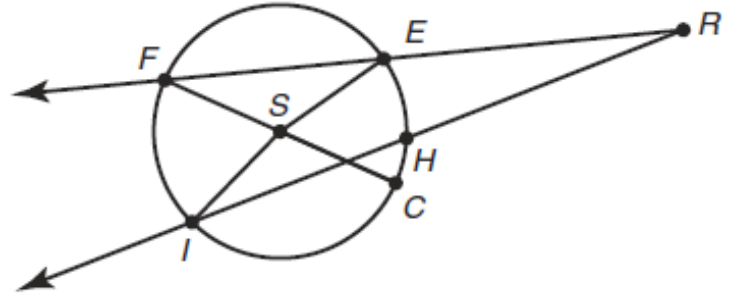**26.** $\overarc{AC}$
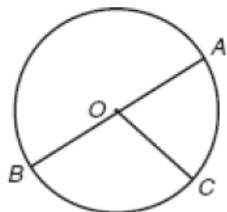
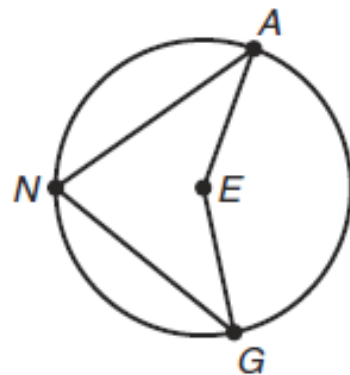**27.** $\overarc{FHI}$
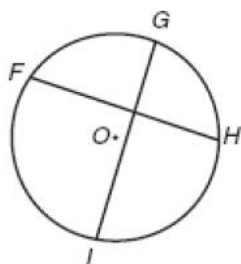
28. $\overarc{TRS}$
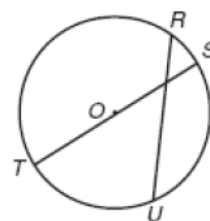
11.2 – Central Angles, Inscribed Angles, and Intercepted Arcs

Use circle *S* to answer each question

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

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

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

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

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

   a. Determine $m\angle AEG$.

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

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

   a. Determine $m\angle ETC$.

   b. Determine $m\angle TCE$.

   c. Determine $m\angle CAE$.
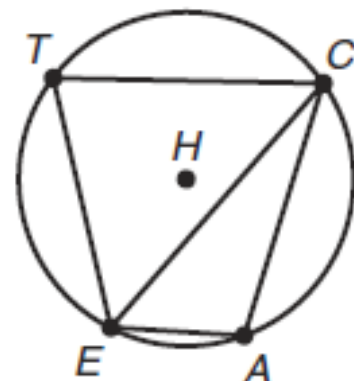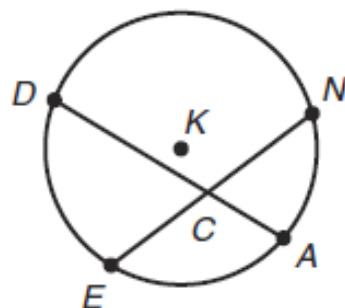
   d. Determine $m\angle TEA$.

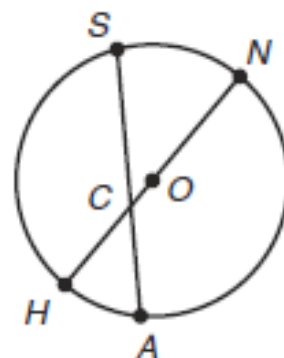## 11.3 – Measuring angles Inside and Outside of Circles

1. In circle P shown, $m\overset{\frown}{DE} = 75°$ and $m\overset{\frown}{NA} = 49°$. Determine $m\angle DTE$.
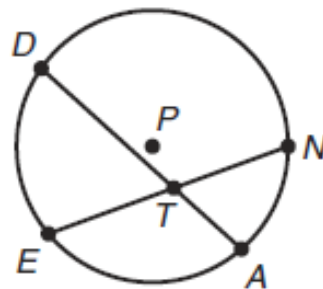
2. In circle K shown, $m\overset{\frown}{DN} = 144°$ and $m\angle NCA = 68°$. Determine $m\overset{\frown}{EA}$.

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

4. In circle X shown, $m\overset{\frown}{AS} = 11°$ and $m\overset{\frown}{MS} = 104°$. Determine $m\angle DCM$.
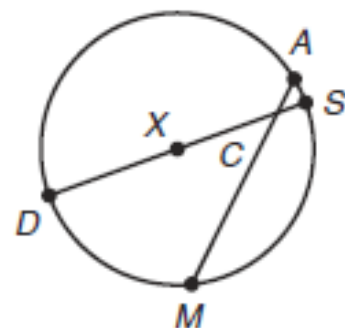
5. In circle S shown, $m\overset{\frown}{ER} = 38°$ and $m\overset{\frown}{OT} = 121°$. Determine $m\angle OUT$.
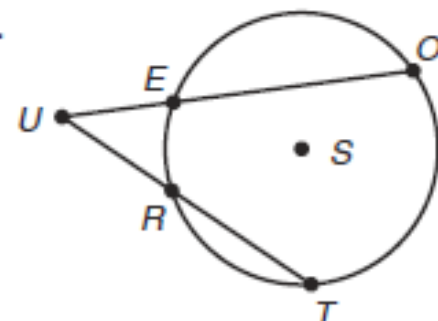
6. In circle M shown, $\overline{XE}$ is a diameter of the circle and $m\overset{\frown}{XT} = 132°$. Draw a chord that connects points X and T. Then determine $m\angle XUT$.
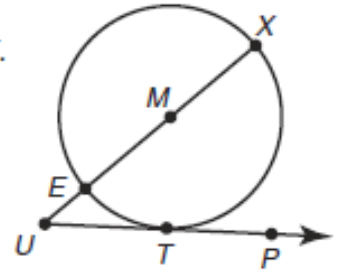
7. In circle G shown, $OH = ES$, $m\overset{\frown}{OH} = 41°$, and $m\overset{\frown}{HE} = 171°$. Determine $m\angle EUH$.
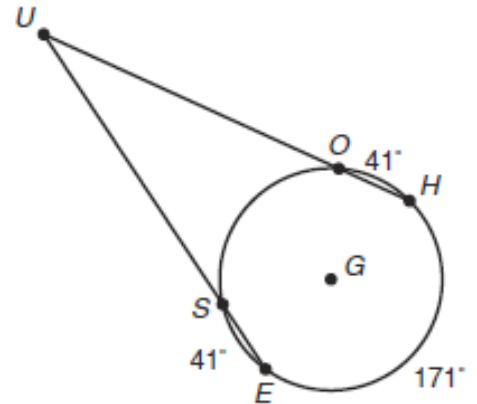
8. In circle B shown, $m\overset{\frown}{HE} = 99°$.

   a. Determine $m\angle HUE$.

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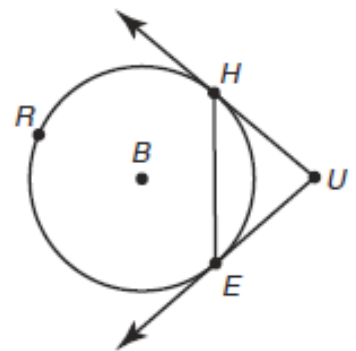
9. In circle T shown, $m\angle RCE = 57°$ and $m\overset{\frown}{RE} = 141°$. Determine $m\overset{\frown}{BL}$.
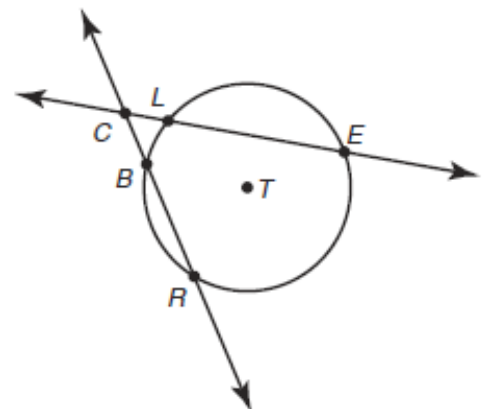
11.4 – Chords

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.

_____1. Diameter-Chord Theorem

_____2. Equidistant Chord Theorem

_____3. Equidistant Chord Converse Theorem
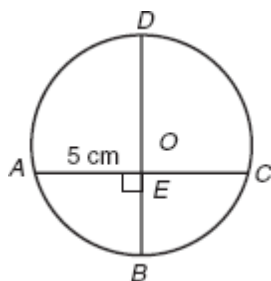
_____4. Congruent Chord-Congruent Arc Theorem

_____5. Congruent Chord-Congruent Arc Converse Theorem
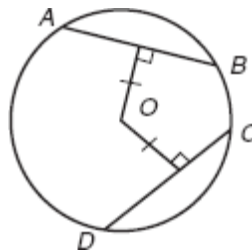
_____6. Segments of a chord

_____7. Segment-Chord Theorem
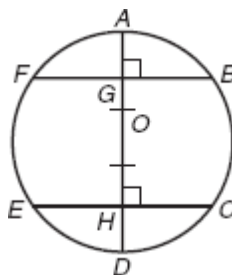
Determine each measurement.

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

9. If the length of $\overline{AB}$ is 13 millimeters, what is the length of $\overline{CD}$?
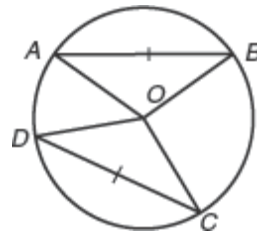
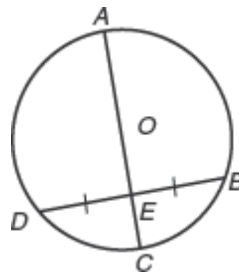10. If the length of $\overline{BF}$ is 32 inches, what is the length of $\overline{CH}$?
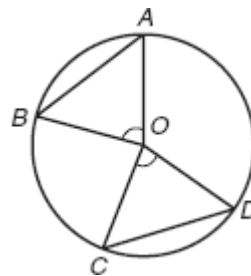
PAP Geometry HW

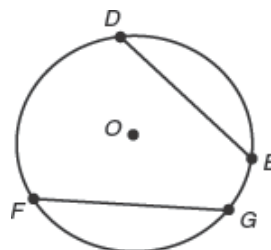11. If the measure of $\angle AOB = 155°$, what is the measure of $\angle DOC$?

12. If segment $\overline{AC}$ is a diameter, what is the measure of $\angle ABD$?
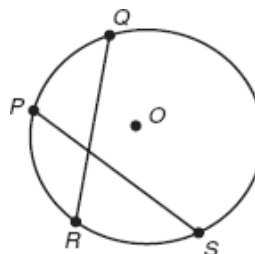
13. If the length of $\overline{AB}$ is 24 centimeters, what is the length of $\overline{CD}$?
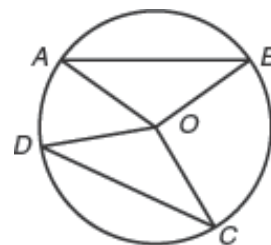
14. If $\overline{DE} = \overline{FG}$, how does the measure of $\overarc{DE}$ and $\overarc{FG}$ compare?

15. If $\overline{QR} = \overline{PS}$, how does the measure of $\overarc{QPR}$ and $\overarc{PRS}$ compare?
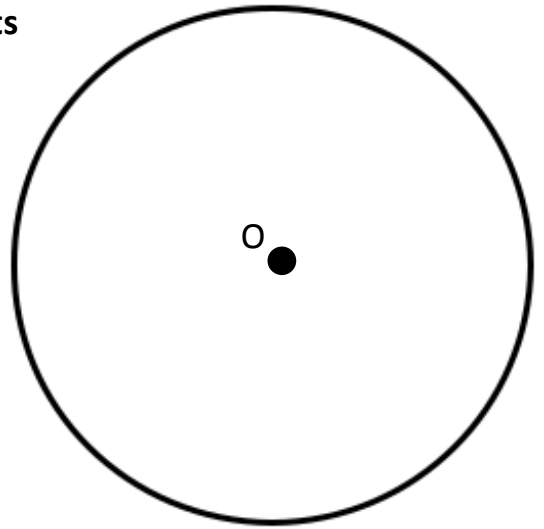
16. If $\angle AOB = \angle DOC$, what is the relationship between $\overline{AB}$ and $\overline{DC}$?

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.

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

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

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

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?
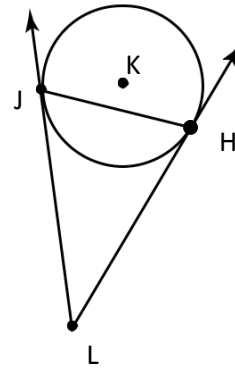
3. In the figure shown, WV = 36 inches, point X is a midpoint of segment WV,
and YV = 40 inches. What is YZ?
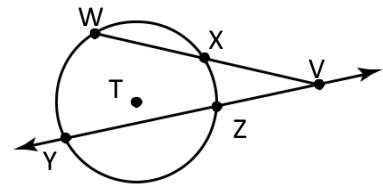
4. In the figure shown, line *FG* is tangent to circle *Q*,
BC = 10 feet, and *CG* = 4 feet. What is *FG*?