Assignment

Write

Match each definition with its corresponding term.

1. Diameter–Chord Theorem

   a. If two chords of the same circle or congruent circles are congruent, then their corresponding arcs are congruent.

2. Equidistant Chord Theorem

   b. If two chords of the same circle or congruent circles are congruent, then they are equidistant from the center of the circle.

3. Equidistant Chord Converse Theorem

   c. If two arcs of the same circle or congruent Arc Theorem circles are congruent, then their corresponding chords are congruent.

4. Congruent Chord–Congruent Arc Theorem

   d. If two chords of the same circle or congruent circles are equidistant from the center of the circle, then the chords are congruent.

5. Congruent Chord–Congruent Arc Converse Theorem

   e. 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.

Remember

The Diameter–Chord Theorem states: "If a circle's diameter is perpendicular to a chord, then the diameter bisects the chord and bisects the arc determined by the chord."

The Equidistant Chord Theorem states: "If two chords of the same circle or congruent circles are congruent, then they are equidistant from the center of the circle."

The Congruent Chord–Congruent Arc Theorem states: "If two chords of the same circle or congruent circles are congruent, then their corresponding arcs are congruent."

Practice

1. Use circle *T* to complete parts (*a*) through (*g*).

   a. Draw an inscribed right angle in circle *T*. Label each point where the angle intersects the circle. What is the name of the right angle?

   b. Draw the chord determined by the inscribed right angle. What is the name of the chord?

   c. Draw a second inscribed right angle in circle *T*. Label each point where the angle intersects the circle. What is the name of the second right angle?

   d. Draw the chord determined by the second inscribed right angle. What is the name of the chord?

   e. Describe the relationship between the arcs that correspond to the chords you named in parts (b) and (d). Explain your reasoning.
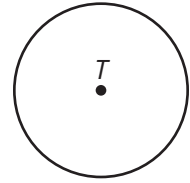
2. The figure shows a section of a circle. Draw two chords and construct their perpendicular bisectors to locate the center of the circle. Explain your work.

3. In circle *G* shown below, *MG* = 1.84 centimeters, *GL* = 1.98 centimeters, m∠*GLH* = 90°, and m∠*GMK* = 90°. Determine which chord is longer, $\overline{IH}$ or $\overline{JK}$. Explain your reasoning.
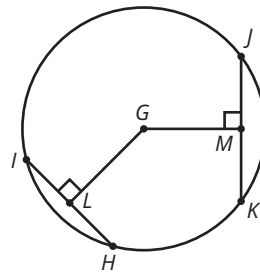
Stretch

1. The circle shown has a diameter of 40 centimeters. The length of *RC* is 12 centimeters, and the length of *UV* is 16 centimeters.

   a. Determine the length of *CU*. Explain your reasoning.

   b. Determine the length of *QS*. Explain your reasoning.
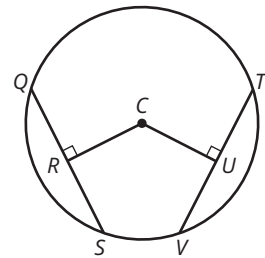
Review

1. Paloma tells you she is thinking of a quadrilateral that is either a rectangle or a square, but not both. She wants you to guess which quadrilateral she is thinking of and allows you to ask one question about the quadrilateral. What question should you ask?

2. Consider the kite shown. The kite without the tail is a quadrilateral. Classify the quadrilateral based only on each piece of given information.

   a. The diagonals of the quadrilateral are perpendicular to each other and bisect each other.

   b. The four angles and the four sides of the quadrilateral are congruent.

3. Given: ∠3 is supplementary to ∠6, ∠1 ≅ ∠12, and m∠12 = 52°. Using the diagram in conjunction with postulates and theorems, determine the measures of the unknown angles.

4. If ∠1 ≅ ∠5, which theorem leads to the conclusion that $Q \parallel S$?
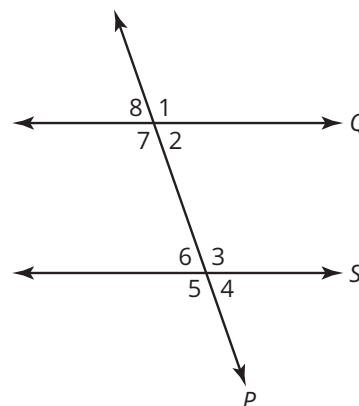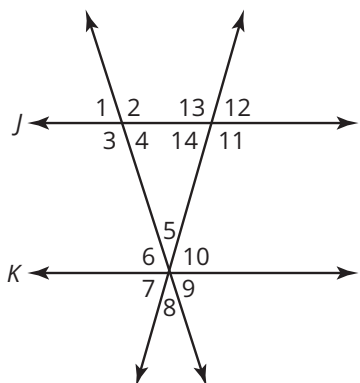
5. The degree measure of each exterior angle of a regular decagon is represented by the expression $5x + 1$. Solve for x.