

Assignment

Write

Match each definition with its corresponding term.

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|---|--|
| 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.”

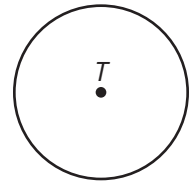
The Equidistant Chord Theorem states: “If two chords of the same circle or congruent circles are congruent, then they are equidistant from the center of the circle.”

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).

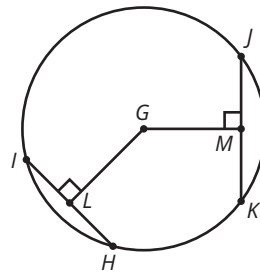
- Draw an inscribed right angle in circle T . Label each point where the angle intersects the circle. What is the name of the right angle?
- Draw the chord determined by the inscribed right angle. What is the name of the chord?
- Draw a second inscribed right angle in circle T . Label each point where the angle intersects the circle. What is the name of the second right angle?
- Draw the chord determined by the second inscribed right angle. What is the name of the chord?
- 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.

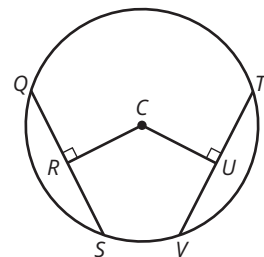


3. In circle G shown below, $MG = 1.84$ centimeters, $GL = 1.98$ centimeters, $m\angle GLH = 90^\circ$, and $m\angle GMK = 90^\circ$. Determine which chord is longer, \overline{IH} or \overline{JK} . Explain your reasoning.



Stretch

- The circle shown has a diameter of 40 centimeters. The length of RC is 12 centimeters, and the length of UV is 16 centimeters.
 - Determine the length of CU . Explain your reasoning.
 - Determine the length of QS . Explain your reasoning.

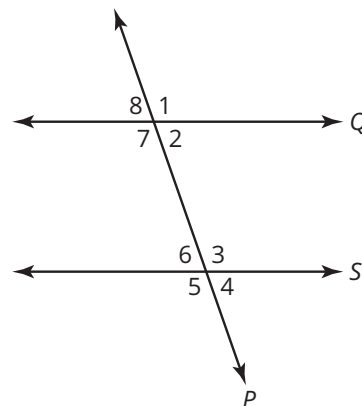
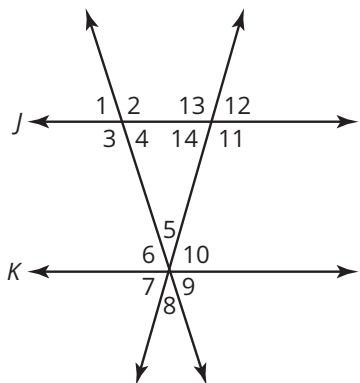


Review

- 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?
- Consider the kite shown. The kite without the tail is a quadrilateral. Classify the quadrilateral based only on each piece of given information.
 - The diagonals of the quadrilateral are perpendicular to each other and bisect each other.
 - The four angles and the four sides of the quadrilateral are congruent.



- Given: $\angle 3$ is supplementary to $\angle 6$, $\angle 1 \cong \angle 12$, and $m\angle 12 = 52^\circ$. Using the diagram in conjunction with postulates and theorems, determine the measures of the unknown angles.
- If $\angle 1 \cong \angle 5$, which theorem leads to the conclusion that $Q \parallel S$?



- The degree measure of each exterior angle of a regular decagon is represented by the expression $5x + 1$. Solve for x .