

Assignment

Write

Define each theorem in your own words.

- Inscribed Angle Theorem
- Inscribed Right Triangle-Diameter Theorem
- Inscribed Quadrilateral-Opposite Angles Theorem
- Interior Angles of a Circle Theorem
- Exterior Angles of a Circle Theorem
- Tangent to a Circle Theorem

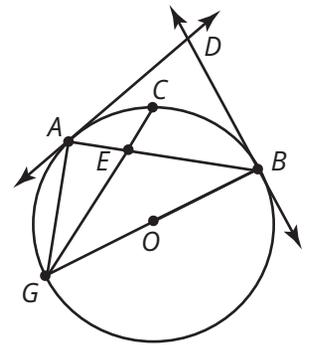
Remember

- The measure of an inscribed angle is half the measure of the arc it intercepts.
- The measure of an interior angle of a circle is half the sum of the measures of its intercepted arc and its vertical angle's intercepted arc.
- The measure of an exterior angle of a circle is half the difference of the measures of its intercepted arcs.
- A radius drawn to the point of tangency is perpendicular to the tangent line.

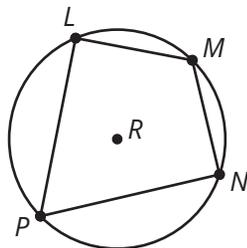
Practice

- Consider circle O with diameter GB . Line AD is tangent to circle O at point A and \overleftrightarrow{DB} is tangent to circle O at point B . The measure of $\angle GBA$ is 38° . Chord GC bisects $\angle G$. Determine each measure.

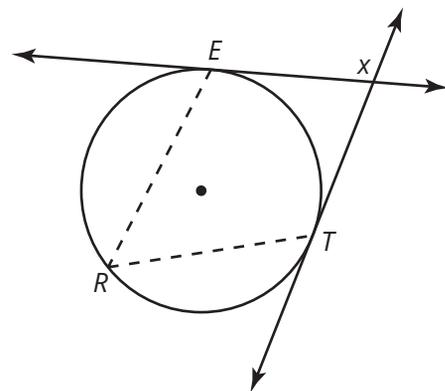
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|--------------------|--------------------|
| a. $m\angle A$ | b. $m\angle G$ |
| c. $m\widehat{AG}$ | d. $m\widehat{AB}$ |
| e. $m\angle ADB$ | f. $m\widehat{AC}$ |



- In the figure shown, quadrilateral $LMNP$ is inscribed in circle R , $m\angle P = 57^\circ$, and $m\angle L = m\angle N$. What are $m\angle M$, $m\angle L$, and $m\angle N$? Explain your reasoning.



- Explain how knowing $m\angle ERT$ can help you determine $m\angle EXT$.



- Construct a circle and label the center Z .
 - Construct a tangent line to circle Z through a point X . Label the point of tangency as point Y .
 - What is the measure of $\angle ZYX$? Explain your reasoning.

Stretch

Ruben says that, in a right triangle, if you draw a line segment from the right angle's vertex to the center of the hypotenuse, the segment that you draw is always half the length of the hypotenuse. How can you show that Ruben's conjecture is correct?

Review

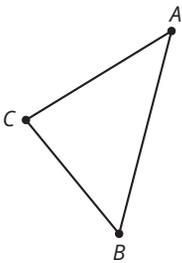
1. A hazard sign is placed near a steep stairwell. The sign design is an equilateral triangle. Suppose the height of the sign is 15 inches. Determine the area of the sign.



2. The roof of a house is in the shape of a triangle. If the builder uses 4 foot shingles in rows on the roof, how many shingles will the builder need for the first row on both sides of the roof? Explain your reasoning.



3. Use a compass and straightedge to construct the incenter of $\triangle ABC$.



4. Which type(s) of quadrilateral have two congruent diagonals?

5. Solve for x and y .

