

Geometry 12.3 Inscribed Angles Name _____

A Central Angle is an angle whose vertex is the center of a circle and whose sides intersect a pair of points on the circle forming an arc between those two points whose measure is equal to the central angle itself.

An Inscribed Angle has a vertex that is on a circle and sides that are chords of the circle.

An Intercepted Arc is an arc with endpoints on the sides of an inscribed angle.

Categorize each picture as either a central or an inscribed angle.

Theorem 12.9 - The measure of an inscribed angle is half the measure of its intercepted arc.

Theorem 12.10 - The measure of an angle formed by a tangent and a chord is half the measure of the intercepted arc.

Corollaries to the Inscribed Angle Theorem

- Two inscribed angles that intercept the same arc are congruent.
- An angle inscribed in a semicircle is a right angle.
- The opposite angles of a quadrilateral inscribed in a circle are supplementary.

May 11-11:58 AM

Find the value for x.

1. 159° x $x = 81^\circ$
2. 105° x $x = 52.5^\circ$
3. x 123° $x = 123^\circ$
4. 134° x $x = 46^\circ$
5. 134° x $m\angle C = 125^\circ$
6. 84° x $x = 168^\circ$
7. 250° x $m\angle C = 125^\circ$

8. Find the missing measures.

124° x $x = 50^\circ$

$m\angle B = 130^\circ$ $m\angle A = 62^\circ$
 $m\angle C = 50^\circ$ $m\angle B = 25^\circ$
 $m\angle E = 56^\circ$ $m\angle C = 25^\circ$

9. Find the missing measures.

90° 150° x $x = 60^\circ$

$arc\ 1 = 120^\circ$
 $m\angle 2 = 45^\circ$
 $m\angle 3 = 75^\circ$
 $m\angle 4 = 60^\circ$

10. Find the values of x and y.

70° 90° x y $x = 80^\circ$ $y = 75^\circ$

11. Find the values of a and b.

12° 7° x $a = 90$ $b = 116$

12. \overline{RS} and \overline{TU} are diameters of circle A. \overline{RB} is tangent to circle A at point R. Find $m\angle BRT$ and $m\angle TRS$.

$m\angle BRT = 27^\circ$
 $m\angle TRS = 63^\circ$

May 11-11:59 AM