

## 9.5 Inscribed Angles in Circles

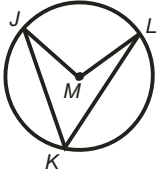
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### Answers

1. semicircle

2. congruent

3. chords

4.   $m\angle JKL = \frac{1}{2}m\angle JML$

5.  $51^\circ$

6.  $46^\circ$

7.  $x = 180^\circ, y = 21^\circ$

8.  $x = 60^\circ, y = 49^\circ$

9.  $x = 30^\circ, y = 60^\circ$

10.  $37^\circ$

11.  $42^\circ$

12.  $6^\circ$

13.  $10^\circ$

14.

<i>Statement</i>	<i>Reason</i>
1. Inscribed $\angle ABC$ and diameter $\overline{BD}$ $m\angle ABE = x^\circ$ and $m\angle CBE = y^\circ$	Given
2. $x^\circ + y^\circ = m\angle ABC$	Angle Addition Postulate
3. $\overline{AE} \cong \overline{EB}$ and $\overline{EB} \cong \overline{EC}$	All radii are congruent
4. $\triangle AEB$ and $\triangle EBC$ are isosceles	Definition of an isosceles triangle
5. $m\angle EAB = x^\circ$ and $m\angle ECB = y^\circ$	Isosceles Triangle Theorem
6. $m\angle AED = 2x^\circ$ and $m\angle CED = 2y^\circ$	Exterior Angle Theorem
7. $m\overset{\frown}{AD} = 2x^\circ$ and $m\overset{\frown}{DC} = 2y^\circ$	The measure of an arc is the same as its central angle.
8. $m\overset{\frown}{AD} + m\overset{\frown}{DC} = m\overset{\frown}{AC}$	Arc Addition Postulate
9. $m\overset{\frown}{AC} = 2x^\circ + 2y^\circ$	Substitution
10. $m\overset{\frown}{AC} = 2(x^\circ + y^\circ)$	Distributive PoE
11. $m\overset{\frown}{AC} = 2m\angle ABC$	Substitution
12. $m\angle ABC = \frac{1}{2}m\overset{\frown}{AC}$	Division PoE