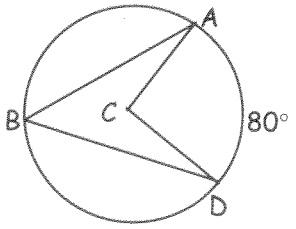
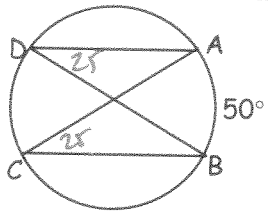
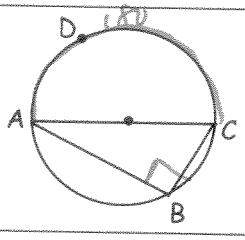
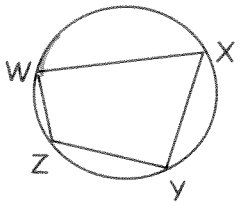
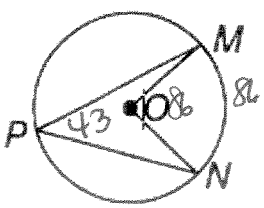
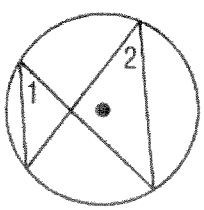
10-4 Inscribed Angles

Model	Terminology & Theorems	Example
	**Inscribed Angle**: has its vertex on the circle and sides that are chords of the circle. *(similar to an inscribed polygon, which has its vertices on a circle)*	∠ABD
	Intercepted arc: has endpoints on the sides of an inscribed angle and lies in the interior of the inscribed angle.	$\overset{\frown}{AD}$
	If an angle is inscribed in a circle, then the measure of the angle equals one half the measure of its intercepted arc.	$m\angle ABD = \frac{1}{2}(m\overset{\frown}{AD})$ or $2(m\angle ABD) = m\overset{\frown}{AD}$
	If two inscribed angles of a circle intercept the same arc or ≅ arcs, then the angles are ≅.	$m\angle ADB = \frac{1}{2}m\overset{\frown}{AB}$ $m\angle ACB = \frac{1}{2}m\overset{\frown}{AB}$ $\angle ADB \cong \angle ACB$
	If an inscribed angle of a triangle intercepts a diameter or semicircle, then the angle is a right angle.	$\overline{AC}$ is a diameter $m\angle ABC = 90°$
	If a quadrilateral is inscribed in a circle, then its opposite angles are supp.	$m\angle W + m\angle Y = 180°$ $m\angle X + m\angle Z = 180°$

1. If $m\angle MON = 86$, find $m\angle MPN$.



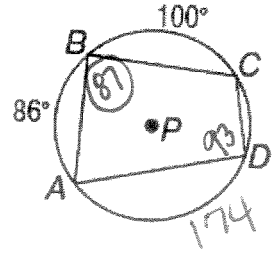
2. Find x if $m\angle 1 = 2x + 10$ and $m\angle 2 = 3x - 6$.



$2x + 10 = 3x - 6$

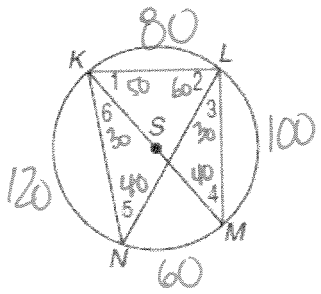
$16 = x$

3. Quadrilateral $ABCD$ is inscribed in circle P. Find $m\angle ABC$.



10-4 Inscribed Angles Practice

In $\odot S$, $m\widehat{KL} = 80$, $m\widehat{LM} = 100$, and $m\widehat{MN} = 60$. Find the measure of each angle.



1. $m\angle 1$ 50

2. $m\angle 2$ 60

3. $m\angle 3$ 30

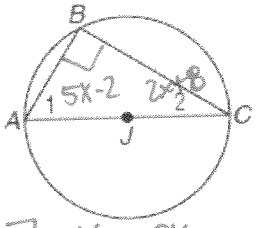
4. $m\angle 4$ 40

5. $m\angle 5$ 40

6. $m\angle 6$ 30

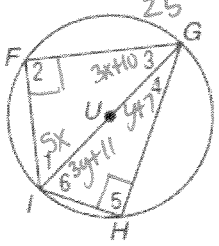
ALGEBRA Find the measure of each numbered angle.

7. $m\angle 1 = 5x - 2$, $m\angle 2 = 2x + 8$



$7x+6=90$
$7x=84$
$x=12$

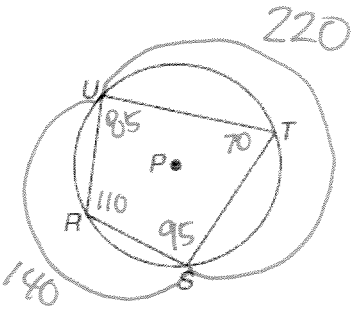
8. $m\angle 1 = 5x$, $m\angle 3 = 3x + 10$, $m\angle 4 = y + 7$, $m\angle 6 = 3y + 11$



$8x+10=90$
$8x=80$
$x=10$

$4y+18=90$
$4y=72$
$y=18$

Quadrilateral $RSTU$ is inscribed in $\odot P$ such that $m\widehat{STU} = 220$ and $m\angle S = 95$. Find each measure.



9. $m\angle R$ 110

10. $m\angle T$ 70

11. $m\angle U$ 85

12. $m\widehat{SRU}$ 140

13. $m\widehat{RUT}$ $95 \cdot 2 = 190$

14. $m\widehat{RST}$ $85 \cdot 2 = 170$