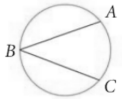
Theorem 12-9 **Inscribed Angle Theorem**

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

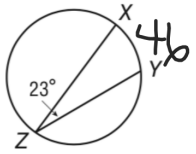
$$m\angle B = \frac{1}{2}m\overset{\frown}{AC}$$



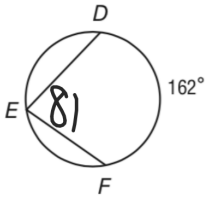
Inscribed Angles

Find each measure.

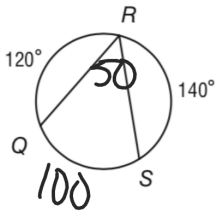
1. $m\overset{\frown}{XY}$



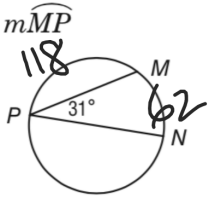
2. $m\angle E$



3. $m\angle R$



4. $m\overset{\frown}{MP}$



ALGEBRA Find each measure.

5. $m\angle N$

17°

$5x+9=6x$

$9=x$

6. $m\angle C$

43

$6y-1=3y+8$

$y=3$

$5x-1=4x+17$

$x-1=17$

$x=18$

7. $m\angle L$

$5(9)+9$

54°

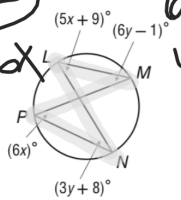
8. $m\angle A$

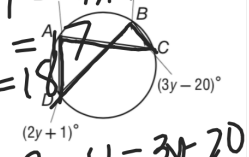
89°

$2y+1=3y-20$

$1=y-20$

$y=21$





9. $m\angle J$

$5x-2+2x+8=90$

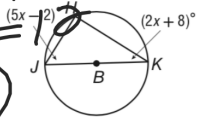
$7x+6=90$

$7x=84$

$x=12$

$(5x-2)^\circ = 58^\circ$

$(2x+8)^\circ = 32^\circ$



10. $m\angle S$

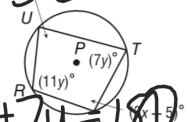
$3x-5+3x+5=180$

$6x=180$

$x=30$

$(3x-5)^\circ = 85^\circ$

$(3x+5)^\circ = 95^\circ$



11. $m\angle R$

$11y+7y=180$

$18y=180$

$y=10$

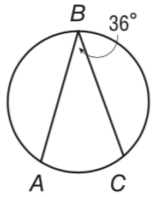
$(11y)^\circ = 110^\circ$

$(7y)^\circ = 70^\circ$

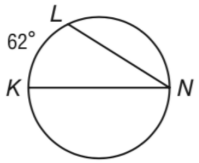
12. $m\angle R$

Find each measure.

1. $m\widehat{AC}$



2. $m\angle N$



Corollaries **Corollaries to the Inscribed Angle Theorem**

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

ALGEBRA Find each measure.

4. $m\angle U$

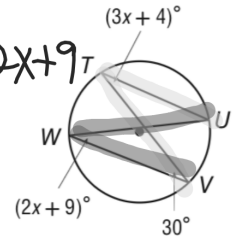
$3x+4=2x+9$

$x+4=9$

$x=5$

5. $m\angle T$

190



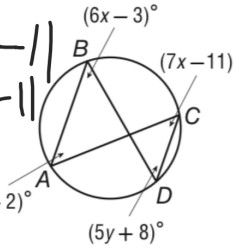
6. $m\angle A$ 58°

$6x-3=7x-11$

$-3=x-11$

$x=8$

7. $m\angle C$ 45°

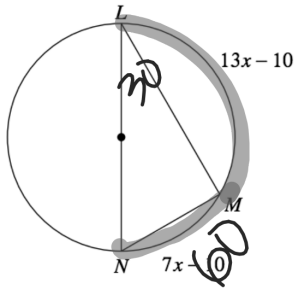


$6y-2=5y+8$

$y=10$

Find the measure of the arc or angle indicated.

Find $m\angle NLM$ 30°



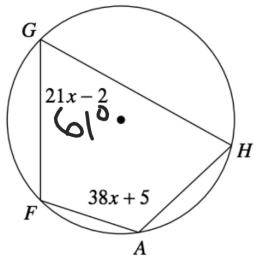
$13x-10+7x-10=180$

$20x-20=180$

$20x=200$

$x=10$

Find $m\widehat{FGH}$



$21x-2+38x+5=180$

$59x+3=180$

$59x=177$

$x=3$

Classwork:

- Practice 12.3 Worksheet

Homework: IXLs U.8 & U.9