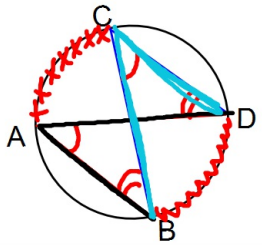
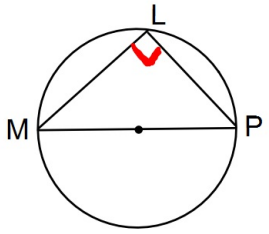
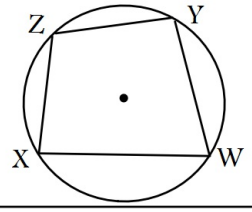
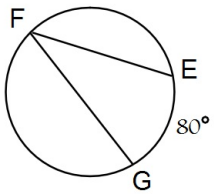
p. 723 10.4 Inscribed Angles

Theorem 10.7: If two inscribed angles intercept the same arc, then the angles are ≅. example: m∠DAB = m∠DCB	
Theorem 10.8: An inscribed angle of a △ intercepts a diameter or semicircle if and only if the angle is a right angle. example: m∠MLP = 90°	
Theorem 10.9: If a quadrilateral is inscribed in a circle, then its opposite angles are supplementary example: m∠Z + m∠W = 180 m∠X + m∠Y = 180	

Example 1: Find each measure.

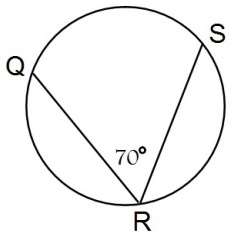
1. m∠F



want angle? ÷ 2

$\frac{80}{2} = \boxed{40°}$

2. m$\widehat{QS}$

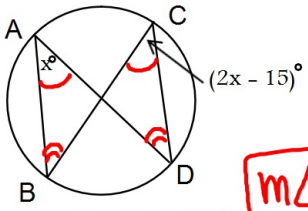


want arc? x 2

70 x 2 =

$\boxed{140°}$

3. m∠C



$\boxed{m\angle C = 15°}$

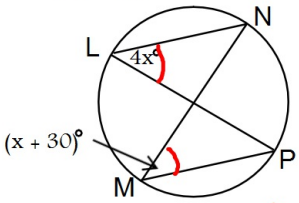
$x = 2x - 15$

$-2x \quad -2x$

$\frac{-x}{-1} = \frac{-15}{-1}$

$\boxed{x = 15}$

4. m∠M



$4x = x + 30$

$-x \quad -x$

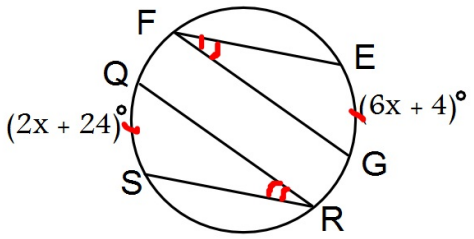
$\frac{3x}{3} = \frac{30}{3}$

$\boxed{x = 10}$

$m\angle M = 10 + 30$

$\boxed{m\angle M = 40°}$

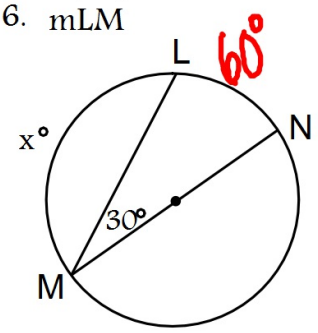
5. $m\widehat{EG}$



$2x+24=6x+4$
$-2x \quad -2x$
$24=4x+4$
$-4 \quad -4$
$\frac{20}{4}=\frac{4x}{4}$
$\boxed{x=5}$

$m\widehat{EG}=6(5)+4$
$\boxed{m\widehat{EG}=34°}$

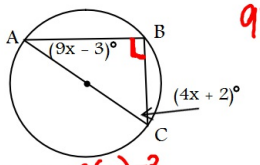
6. $m\widehat{LM}$



$x+60=180$
$\boxed{x=120}$

Example 2. Find each value.

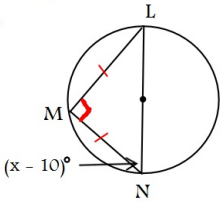
1. $m\angle A$



$9x-3+4x+2=90$
$13x-1=90$
$\frac{13x}{13}=\frac{91}{13}$
$\boxed{x=7}$

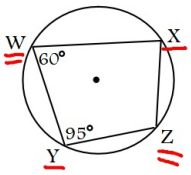
$m\angle A=9(7)-3$
$\boxed{m\angle A=60°}$

2. x



$x-10=45$
$\boxed{x=55}$

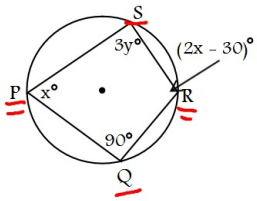
3. $m\angle X$ and $m\angle Z$



$m\angle X+95=180$
$\boxed{m\angle X=85°}$

$m\angle Z+60=180$
$\boxed{m\angle Z=120°}$

4. $m\angle R$ and $m\angle S$



$2x-30+x=180$
$3x-30=180$
$3x=210$
$x=70$

$\boxed{m\angle R=110°}$
$2(70)-30$

$3y+90=180$
$3y=90$
$y=30$

$m\angle S=3(30)$
$\boxed{m\angle S=90°}$

Turn-in:

Quick Check 10.4

HW:

p. 727 (11-20 all, 24-30 evens)