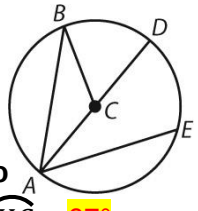
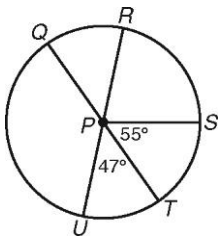
15.1 Name:_____

Refer to the figure for Problems 1–3. *C* is the center of the circle.



1. Name the chord(s). $\overline{AB}, \overline{AD}, \overline{AE}$
2. Name the central angle(s). $\angle ACB, \angle BCD$
3. Name the inscribed angle(s). $\angle BAD, \angle BAE, \angle DAE$

For each figure, determine the indicated measures. Explain your reaso

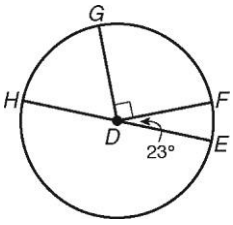
4. 

$m\overset{\frown}{QS}$= 125°

because _____

$m\overset{\frown}{RQT}$= 227°

because _____

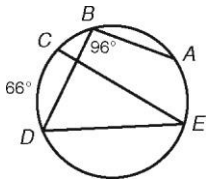
5. 

$m\overset{\frown}{HG}$ = 67°

because _____

$m\overset{\frown}{FEH}$= 203°

because _____

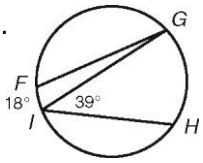
6. 

m∠*CED* = 33°

because _____

$m\overset{\frown}{DEA}$ = 192°

because _____

7. 

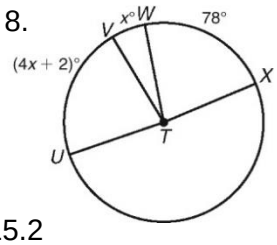
m∠*FGI* = 9°

because _____

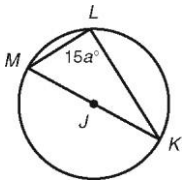
$m\overset{\frown}{GH}$ = 78°

because _____

Find the unknown value. Show all work.

8. 

x = 20

9. 

a = 6

15.2

Each quadrilateral described is inscribed in a circle. Determine the angle measures. Show work.

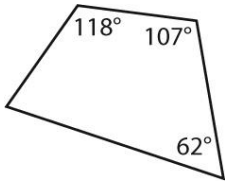
1. Quadrilateral *ABCD* has m∠*A* = 53° and m∠*B* = 82°.

   m∠*C* = 127° m∠*D* = 98°

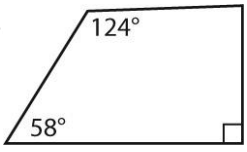
2. Quadrilateral *RSTU* has m∠*S* = 104° and m∠*T* = 55°.

   m∠*R* =125° m∠*U* = 76°

Determine whether each quadrilateral can be inscribed in a circle. If it cannot be determined, say so.

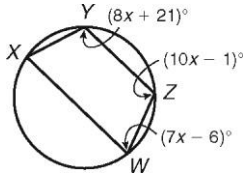
3. 

yes, because

4 

No because

For each inscribed quadrilateral, determine the angle measures. Show all work.

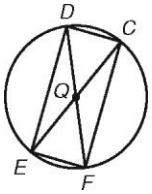
5. 

m∠*X*= 71°

m∠*Y* = 109°

m∠*Z* = 109°

m∠*W* = 71°

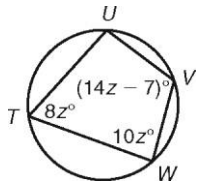
6. 

m∠*C* = 90°

m∠*D* = 90°

m∠*E* = 90°

m∠*F* = 90°

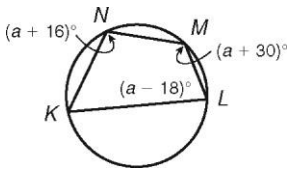
7. 

m∠*T* = 68°

m∠*U* = 95°

m∠*V* = 112°

m∠*W* = 85°

8. 

m∠*K* = 59°

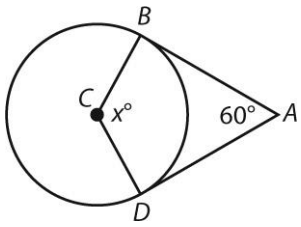
m∠*L* = 73°

m∠*M* = 121°

m∠*N* = 107°

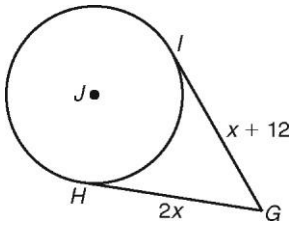
15.3

Refer to the figure for Problems 1–3. $\overline{AB}$ is tangent to $\odot C$ at point *B* and $\overline{AD}$ is tangent to $\odot C$ at point *D*. Answer the questions to determine the measure of ∠*BCD*.



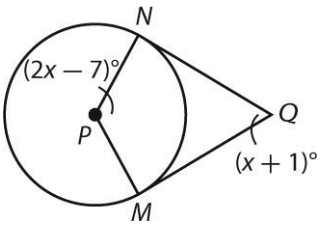
1. How are ∠*BAD* and ∠*BCD* related? The are supplementary.
2. Write an equation to solve for *x*. $x + 60 = 180$
3. Solve the equation. What is m∠*BCD*? 120°

Refer to the figure for Problems 4–7. $\overline{GH}$ is tangent to $\odot J$ at point *H* and $\overline{GI}$ is tangent to $\odot J$ at point *I*. Answer the questions to determine the length of $\overline{GH}$.



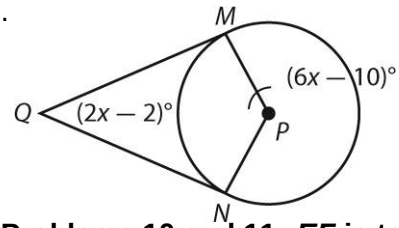
4. How are $\overline{GH}$ and $\overline{GI}$ related? They are congrent
5. Write an equation to solve for *x*. $2x = x + 12$
6. Solve the equation. What is the value of *x*? $x = 12$ 7.What is *GH*? $GH = 24$

In Problems 8 and 9, $\overline{QM}$ is tangent to $\odot P$ at point *M* and $\overline{QN}$ is tangent to $\odot P$ at point *N*. Solve for the variable and determine the angle measures.

8. 

x = 62 m∠*NQM* = 63°

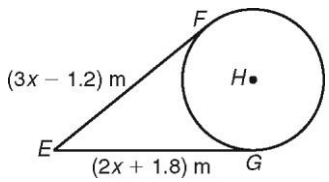
m∠*PNQ* = 90° m∠*NPM* = 117°

9. 

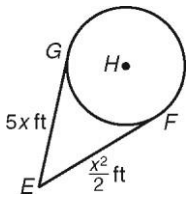
x = 24 m∠*MQN* = 46°

m∠*QMP* = 90° m∠*NPM* = 134°

In Problems 10 and 11, *EF* is tangent to $\odot H$ at point *F* and $\overline{EG}$ is tangent to $\odot H$ at point *G*. Determine the length of $\overline{EF}$.

10. 

EF = 7.8 m

11. 

EF = 50 ft.