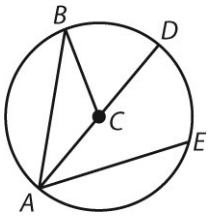
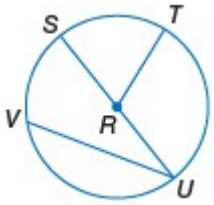
15-1 Central Angles and Inscribed Angles

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



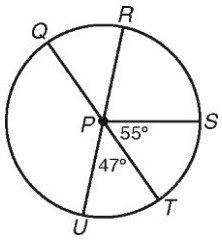
1. Name the chord(s).
2. Name the central angle(s).
3. Name the inscribed angle(s).

For Exercises 4 – 6, refer to $\odot R$.



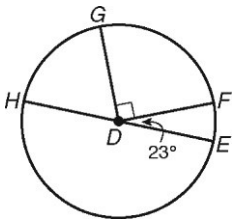
4. Name the center of the circle.
5. Identify a chord that is also a diameter.
6. Is $\overline{VU}$ a radius? Explain?

For each figure, determine the indicated measures.

7. 

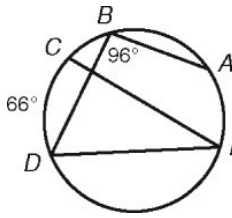
$m\overset{\frown}{QS} =$

$m\overset{\frown}{RQT} =$

8. 

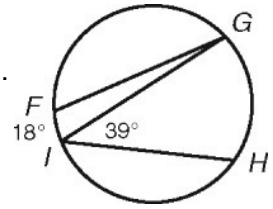
$m\overset{\frown}{HG} =$

$m\overset{\frown}{FEH} =$

9. 

$m\angle CED =$

$m\overset{\frown}{DEA} =$

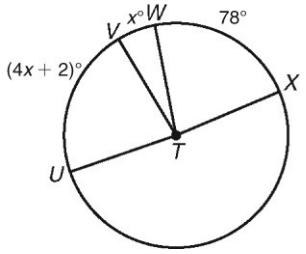
10. 

$m\angle FGI =$

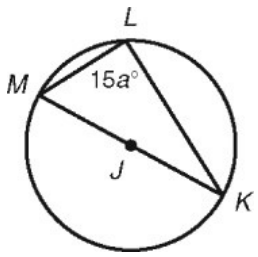
$m\overset{\frown}{GH} =$

Find the unknown value.

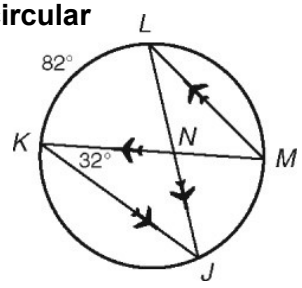
11. $x =$



12. $a =$



The figure shows a passenger airplane's flight path on a circular radar screen in an air traffic control tower.

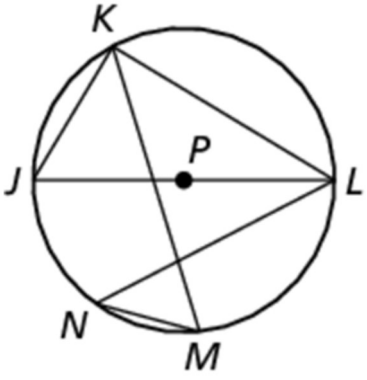


13. What is $m\overset{\frown}{MJ}$?

14. What is $m\angle LJK$?

15. What is $m\angle LNK$?

In Exercises 16–23, find the measure of the indicated arc or angle in $\odot P$ given $m\overset{\frown}{LM} = 84°$ and $m\overset{\frown}{KN} = 116°$.



16. $m\angle JKL$

17. $m\angle MKL$

18. $m\angle KMN$

19. $m\angle JKM$

20. $m\angle KLN$

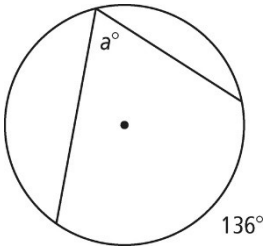
21. $m\angle LNM$

22. $m\overset{\frown}{MJ}$

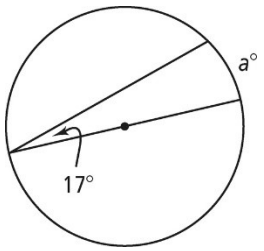
23. $m\overset{\frown}{LKJ}$

Find the value of each variable. For each circle, the dot represents the center.

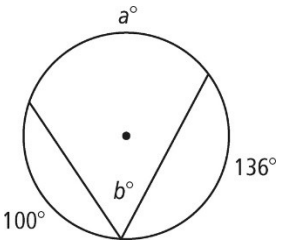
24.



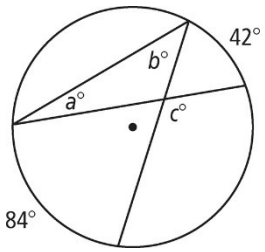
25.



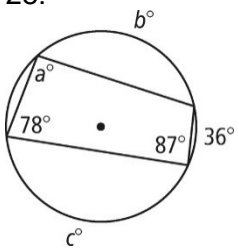
26.



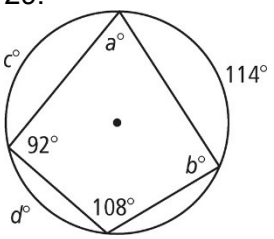
27.



28.



29.



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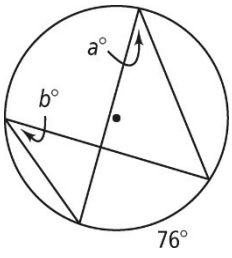
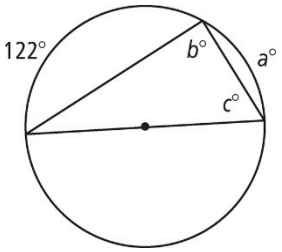
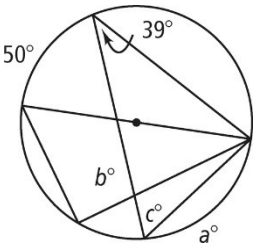


31.



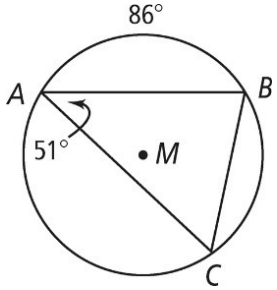
32.



Find each indicated measure for $\odot M$

33. a. $m\angle B$ **b.** $m\angle C$

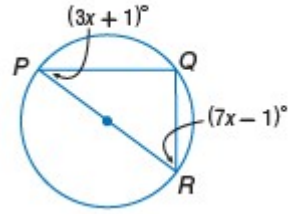
c. $m\widehat{BC}$ **d.** $m\widehat{AC}$



Find each value.

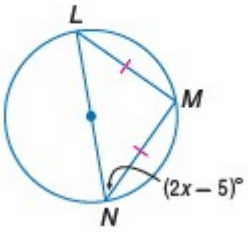
34.

$m\angle R$



35.

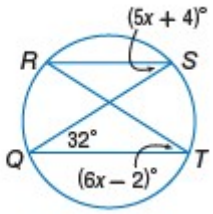
x



36.

$m\angle R$

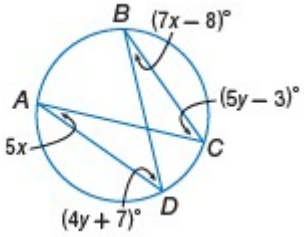
$m\angle S$



37.

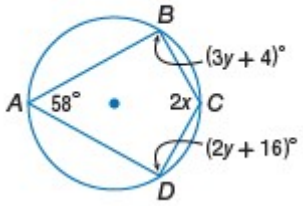
$m\angle A$

$m\angle C$



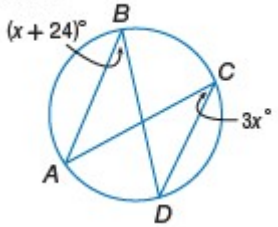
38.

$m\angle C$ and $m\angle D$

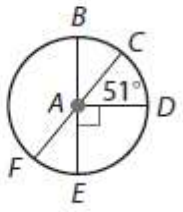


39.

$m\angle B$



The center of the circle is A. Find each measure using the appropriate theorems and postulates.

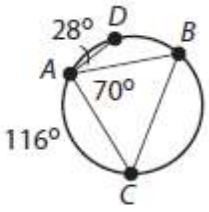


7. $m\widehat{CE}$

8. $m\widehat{DF}$

9. $m\widehat{BEC}$

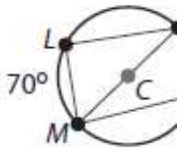
Find each measure using the appropriate theorems and postulates. $m\widehat{AC} = 116°$



10. $m\widehat{BC}$

11. $m\widehat{AD}$

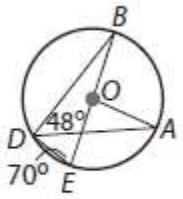
The center of the circle is C. Find each measure using the appropriate theorems and postulates. $m\widehat{LM} = 70°$ and $m\widehat{NP} = 60°$.



12. $m\angle MNP$

13. $m\angle LMN$

The center of the circle is O. Find each arc or angle measure using the appropriate theorems and postulates.



14. $m\angle BDE$

15. $m\overset{\frown}{ABD}$

16. $m\overset{\frown}{ED}$

17. $m\angle DBE$

Represent Real-World Problems The circle graph shows how a typical household spends money on energy. Use the graph to find the measure of each arc.

18. $m\overset{\frown}{PQ}$

19. $m\overset{\frown}{UPT}$