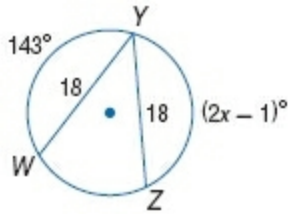
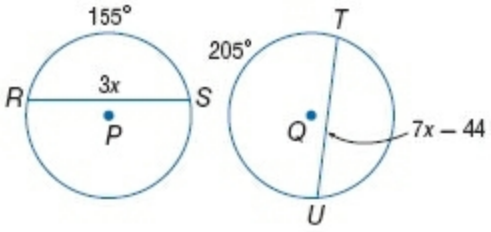
9-3 Arcs and Chords

ALGEBRA Find the value of x.

10. 

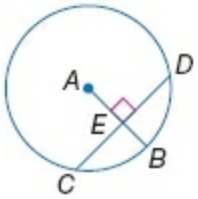
ANSWER:
72

14. $\odot P \cong \odot Q$



ANSWER:
11

In $\odot A$, the radius is 14 and CD = 22. Find each measure. Round to the nearest hundredth, if necessary.



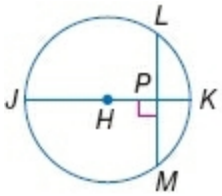
16. *CE*

ANSWER:
11

17. *EB*

ANSWER:
5.34

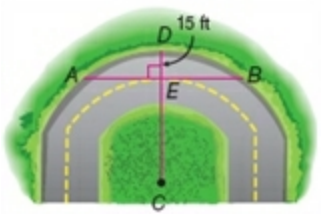
In $\odot H$, the diameter is 18, LM = 12, and $m\widehat{LM} = 84$. Find each measure. Round to the nearest hundredth, if necessary.



19. *HP*

ANSWER:
6.71

21. **ROADS** The curved road at the right is part of $\odot C$, which has a radius of 88 feet. What is AB? Round to the nearest tenth.



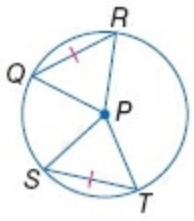
ANSWER:
98.3 ft

PROOF Write the specified type of proof.

25. paragraph proof of Theorem 9.2, part 2

Given: $\odot P, \overline{QR} \cong \overline{ST}$

Prove: $\overset{\frown}{QR} \cong \overset{\frown}{ST}$



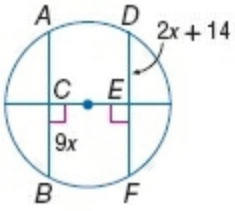
ANSWER:

Proof:

Because all radii are congruent, $\overline{QP} \cong \overline{PR} \cong \overline{SP} \cong \overline{PT}$. You are given that $\overline{QR} \cong \overline{ST}$, so $\Delta PQR \cong \Delta PST$ by SSS. Thus, $\angle QPR \cong \angle SPT$ by CPCTC. Since the central angles have the same measure, their intercepted arcs have the same measure and are therefore congruent. Thus, $\overset{\frown}{QR} \cong \overset{\frown}{ST}$.

ALGEBRA Find the value of *x*.

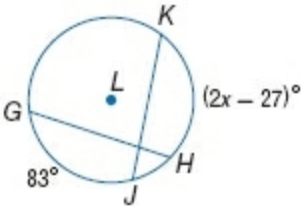
31. $\overline{AB} \cong \overline{DF}$



ANSWER:

2

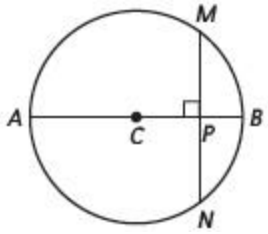
32. $\overline{GH} \cong \overline{KJ}$



ANSWER:

55

45. In $\odot C$, the diameter is 22 centimeters and $MN = 18$ centimeters.



Which is the best estimate of the length of $\overline{CP}$?

A 2.0 cm
B 6.3 cm
C 4.0 cm
D 14.2 cm

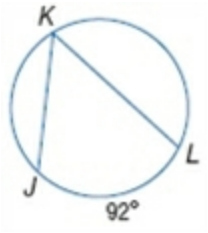
ANSWER:

B

9-4 Inscribed Angles

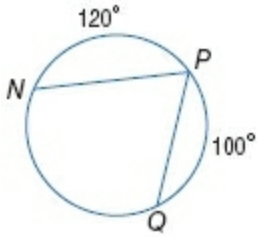
Find each measure.

12. $m\angle K$



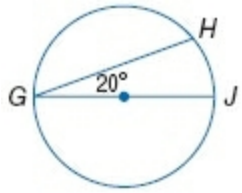
ANSWER:
46

13. $m\angle P$



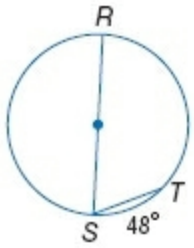
ANSWER:
70

15. $m\widehat{GH}$



ANSWER:
140

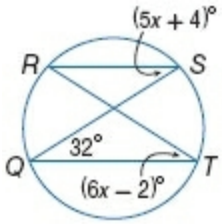
16. $m\angle S$



ANSWER:
66

ALGEBRA Find each measure.

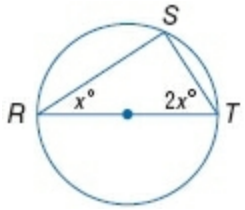
18. $m\angle S$



ANSWER:
34

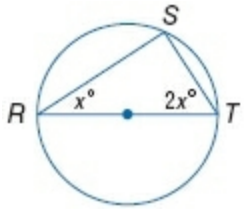
ALGEBRA Find each value.

23. x



ANSWER:
30

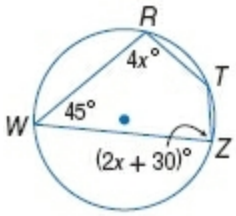
24. $m\angle T$



ANSWER:
60

STRUCTURE Find each measure.

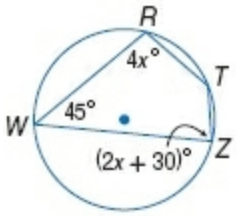
27. $m\angle T$



ANSWER:

135

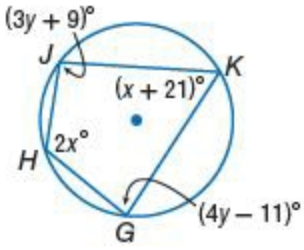
28. $m\angle Z$



ANSWER:

80

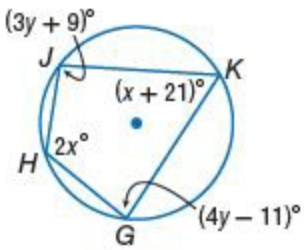
29. $m\angle H$



ANSWER:

106

30. $m\angle G$



ANSWER:

93

47. **CHALLENGE** A square is inscribed in a circle. What is the ratio of the area of the circle to the area of the square?

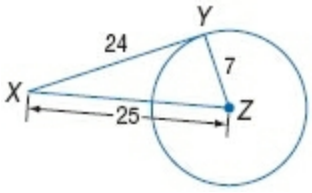
ANSWER:

$\frac{\pi}{2}$

9-5 Tangents

Determine whether each $\overline{XY}$ is tangent to the given circle. Justify your answer.

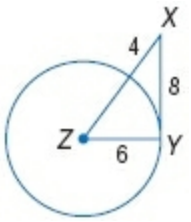
13.



ANSWER:

Yes; 625 = 625

14.

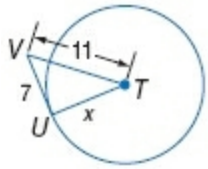


ANSWER:

Yes; 100 = 100

Find *x*. Assume that segments that appear to be tangent are tangent. Round to the nearest tenth if necessary.

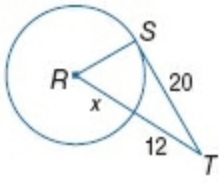
18.



ANSWER:

8.5

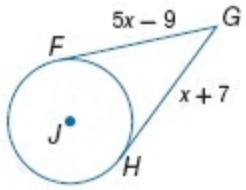
20.



ANSWER:

10.7

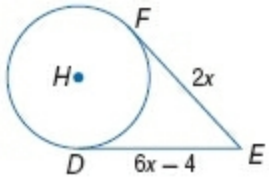
21.



ANSWER:

4

22.

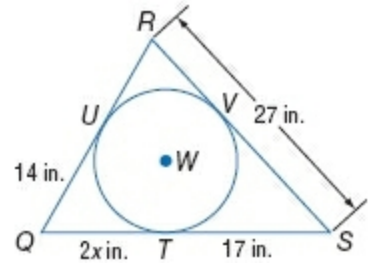


ANSWER:

1

SENSE-MAKING Find the value of *x*. Then find the perimeter.

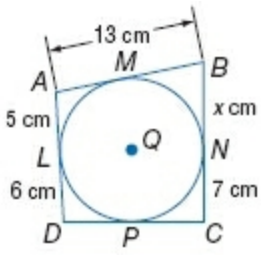
24.



ANSWER:

7; 82 in.

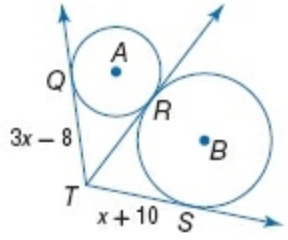
25.



ANSWER:

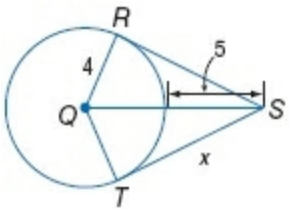
8; 52 cm

Find *x* to the nearest hundredth. Assume that segments that appear to be tangent are tangent.

26. 

ANSWER:

9

27. 

ANSWER:

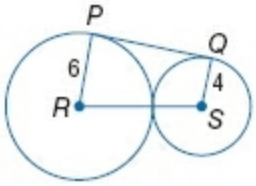
8.06

30. **SATELLITES** A satellite is 720 kilometers above Earth, which has a radius of 6360 kilometers. The region of Earth that is visible from the satellite is between the tangent lines $\overline{BA}$ and $\overline{BC}$. What is *BA*? Round to the nearest hundredth.

ANSWER:

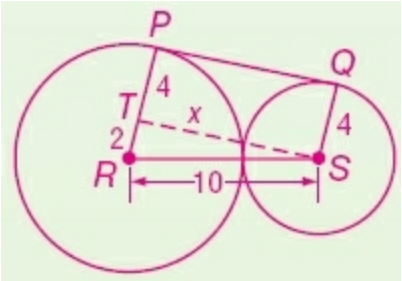
3110.76 km

35. **CHALLENGE** $\overline{PQ}$ is tangent to circles *R* and *S*. Find *PQ*. Explain your reasoning.



ANSWER:

Sample answer:

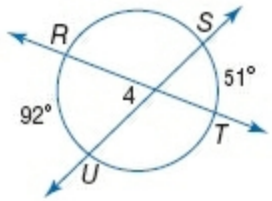


Using the Pythagorean Theorem, $2^2 + x^2 = 10^2$, so $x \approx 9.8$. Since *PQST* is a rectangle, $PQ = x = 9.8$.

9-6 Secants, Tangents, and Angle Measures

Find each measure. Assume that segments that appear to be tangent are tangent.

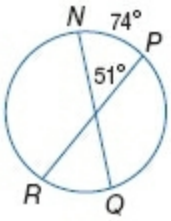
9. $m\angle 4$



ANSWER:

71.5

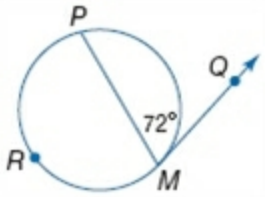
11. $m\widehat{RQ}$



ANSWER:

28

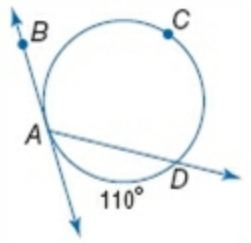
13. $m\widehat{PM}$



ANSWER:

144

15. $m\angle DAB$

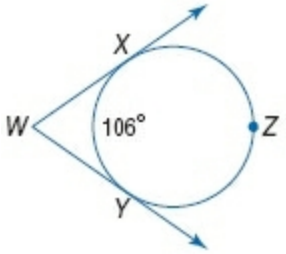


ANSWER:

125

STRUCTURE Find each measure.

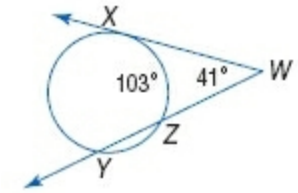
19. $m\angle W$



ANSWER:

74

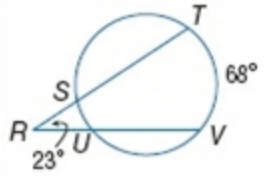
21. $m\widehat{XY}$



ANSWER:

185

23. $m\widehat{SU}$

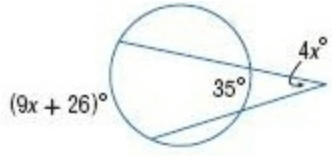


ANSWER:

22

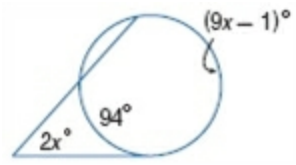
ALGEBRA Find the value of x.

26.



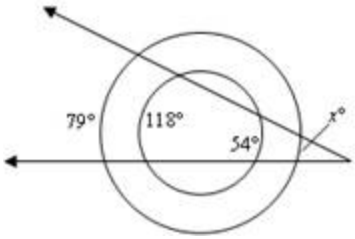
ANSWER:

9

28. 

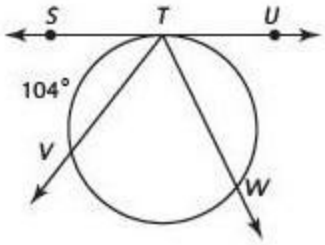
ANSWER:
19

37. **CHALLENGE** The circles below are concentric.
What is x?



ANSWER:
15

42. In the figure, $\overrightarrow{TW}$ bisects $\angle VTU$ and $m\widehat{TV} = 104$.



What is the measure of $\angle UTW$?
A 38
B 52
C 64
D 76
E 128

ANSWER:
C