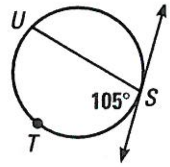
GUIDED PRACTICE

Concept Check ✓

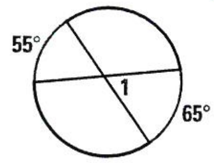
1. If a chord of a circle intersects a tangent to the circle at the point of tangency, what is the relationship between the angles formed and the intercepted arcs?

Skill Check ✓ **Find the indicated measure or value.**

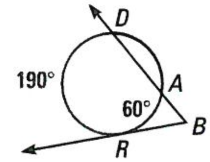
2. $m\widehat{STU}$ $= 210°$



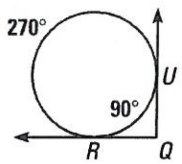
3. $m\angle 1$ $= 60 = \frac{65+55}{2}$



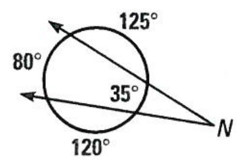
4. $m\angle DBR$ $: \frac{190-60}{2} =$ 65°



5. $m\angle RQU$ $= 90°$



6. $m\angle N$ $= 22.5°$



7. $m\angle 1$ $= 88°$

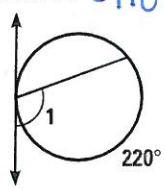
PRACTICE AND APPLICATIONS

STUDENT HELP

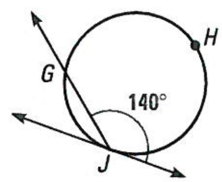
Extra Practice to help you master skills is on p. 822.

FINDING MEASURES **Find the indicated measure.**

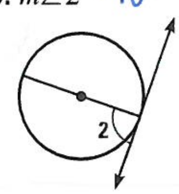
8. $m\angle 1$ $= 110°$



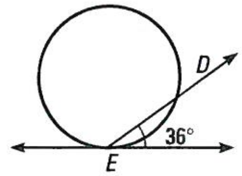
9. $m\widehat{GHJ}$ $= 280°$



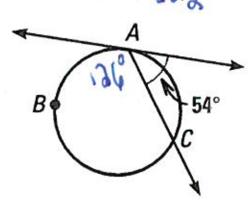
10. $m\angle 2$ $= 90°$



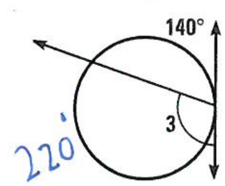
11. $m\widehat{DE}$ $= 72°$



12. $m\widehat{ABC}$ $= 252°$



13. $m\angle 3$ $= 110°$

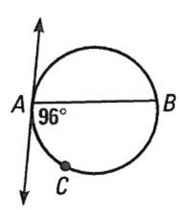


USING ALGEBRA **Find the value of *x*.**

STUDENT HELP

HOMEWORK HELP
Example 1: Exs. 8–13
Example 2: Exs. 14–16
Example 3: Exs. 17–25
Example 4: Exs. 26–28
Example 5: Ex. 35

14. $m\widehat{AB} = x°$ $= 192°$

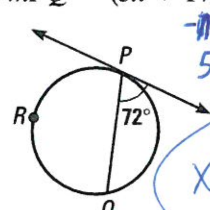


15. $m\widehat{PQ} = (5x + 17)°$ $= 144$

$-17 \quad -17$

$5x = 127$

$x = \frac{127}{5}$



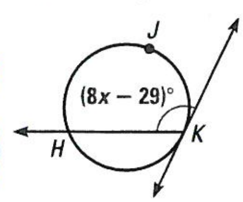
16. $m\widehat{HJK} = (10x + 50)°$

$10x+50 = 2(8x-29)$

$10x+50 = 16x-58$

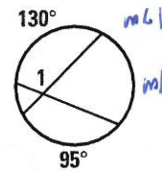
$\frac{108}{6} = \frac{6x}{6}$

$18 = x$



FINDING ANGLE MEASURES **Find $m\angle 1$.**

17.



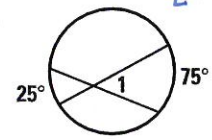
$m\angle 1 = \frac{130+95}{2}$

$m\angle 1 = \frac{225}{2}$

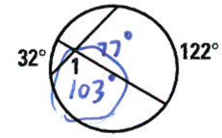
112.5

18.

$\angle 1 = 50$

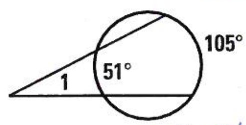


19.



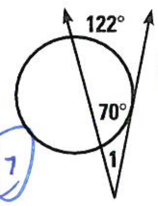
$\frac{154}{2} = 77°$

20.



$\frac{105-51}{2} = \frac{54}{2} = 27$

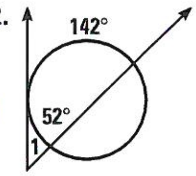
21.



$\frac{122-70}{2}$

$\frac{52}{2} = 26$

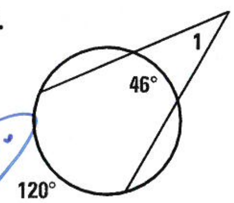
22.



$\frac{142-52}{2}$

$\frac{90}{2} = 45°$

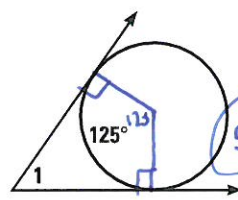
23.



$120 - 46 = 74$

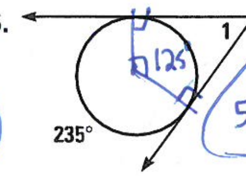
$74/2 = 37°$

24.



55°

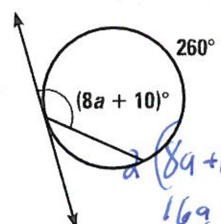
25.



55°

USING ALGEBRA **Find the value of *a*.**

26.



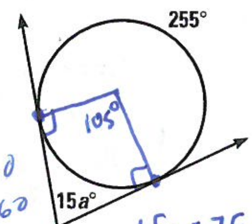
$2(8a+10) = 260$

$16a + 20 = 260$

$16a = 240$

$a = 15$

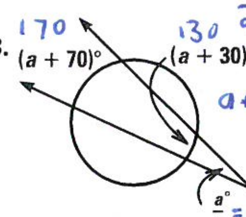
27.



$15a = 75$

$a = 5$

28.



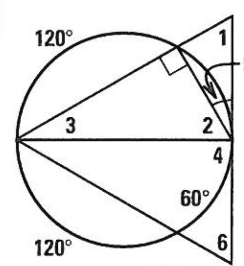
$\frac{a+70-(a+30)}{2} = \frac{a}{2}$

$a+70-a+30 = a$

$100 = a$

$\frac{a}{2} = 50$

FINDING ANGLE MEASURES **Use the diagram at the right to find the measure of the angle.**



$5 = 30$

29. $m\angle 1$ $= 60$

30. $m\angle 2$ $= 60$

31. $m\angle 3$ $= 30$

32. $m\angle 4$ $= 90$

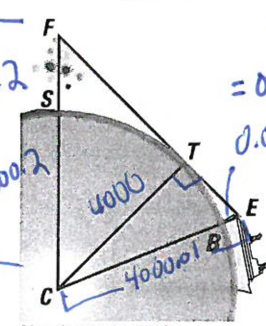
33. $m\angle 5$ $= 30$

34. $m\angle 6$ $= 60$

STUDENT HELP

APPLICATION LINK
Visit our Web site
www.mcdougallittell.com.

35. **FIREWORKS** You are watching fireworks over San Diego Bay S as you sail away in a boat. The highest point the fireworks reach F is about 0.2 mile above the bay and your eyes E are about 0.01 mile above the water. At point B you can no longer see the fireworks because of the curvature of Earth. The radius of Earth is about 4000 miles and $\overline{FE}$ is tangent to Earth at T. Find $m\widehat{SB}$. Give your answer to the nearest tenth of a degree.



Not drawn to scale

$m\widehat{SB} = \cos^{-1}\left(\frac{4000}{4000.2}\right) + \cos^{-1}\left(\frac{4000}{4000.01}\right)$

$= 0.57 + 0.13$

$= 0.70°$