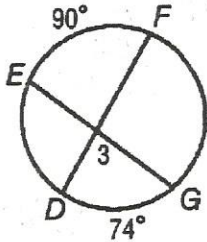


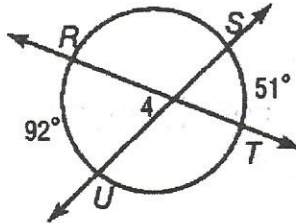
SHOW ALL WORK AND CIRCLE YOUR FINAL ANSWERS!

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

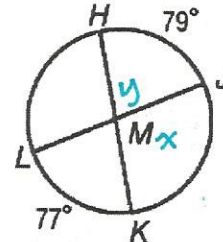
8. $m\angle 3 = \frac{1}{2}(90+74) = 82^\circ$



9. $m\angle 4 = \frac{1}{2}(92+51) = 71.5^\circ$

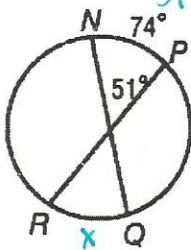


10. $m\angle JMK = 102^\circ$



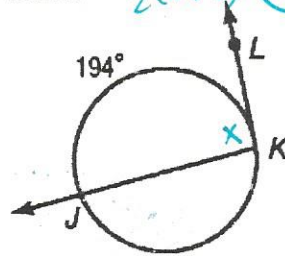
$y = \frac{1}{2}(79+77)$
 $y = 78$
 $x = 180 - y$
 $180 - 78 = 102$

11. $m\widehat{RQ} = 28^\circ$
 $51 = \frac{1}{2}(74+x)$

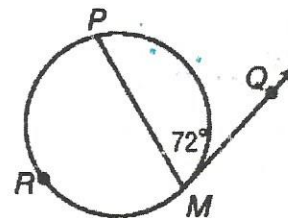


$102 = 74 + x$
 $28 = x$

12. $m\angle K = \frac{1}{2}(194) = 97^\circ$

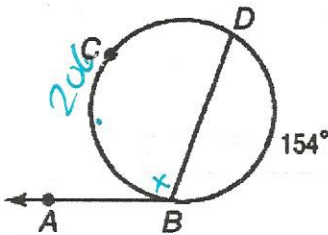


13. $m\widehat{PM} = 144^\circ$

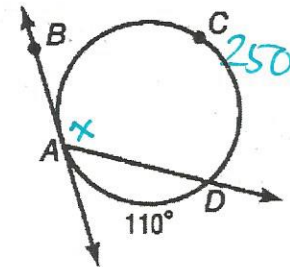


$\frac{1}{2}(PM) = 72$
 $PM = 2(72)$

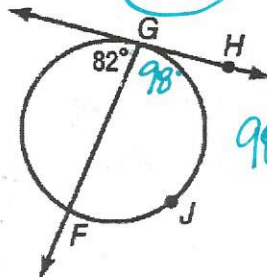
14. $m\angle ABD = \frac{1}{2}(206) = 103^\circ$



15. $m\angle DAB = \frac{1}{2}(250) = 125^\circ$



16. $m\widehat{GF} = 196^\circ$



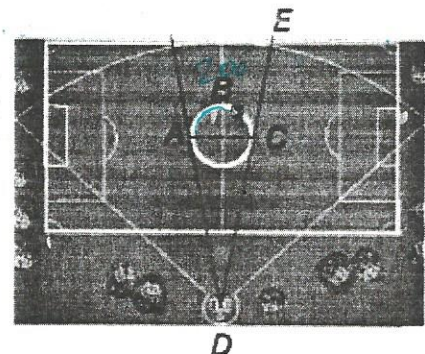
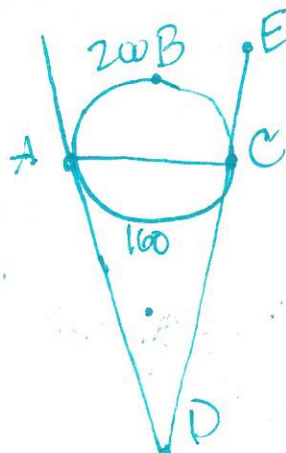
$98 \cdot 2 = 196$

17. SPORTS The multi-sport field shown includes a softball field and a soccer field. If $m\angle ABC = 200$, find each measure.

a. $m\angle ACE = \frac{1}{2}(200) = 100^\circ$

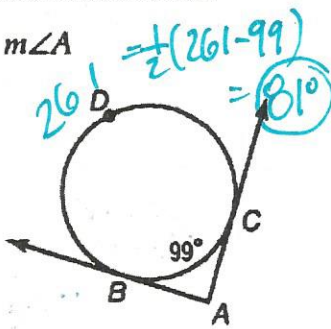
b. $m\angle ADC = \frac{1}{2}(200 - 160)$

$= 20^\circ$

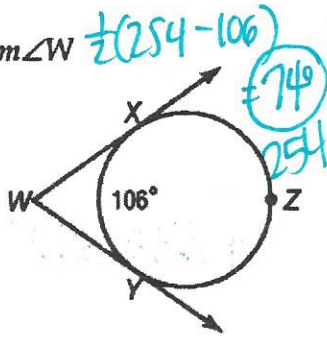


4 Find each measure.

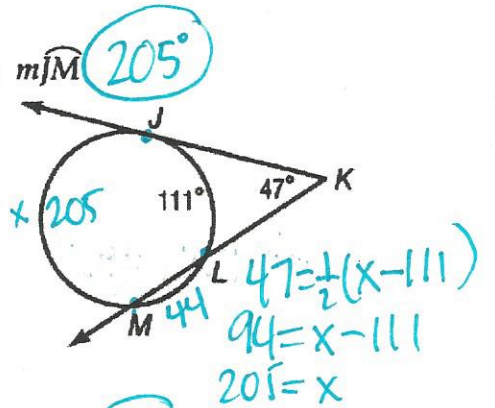
18. $m\angle A$



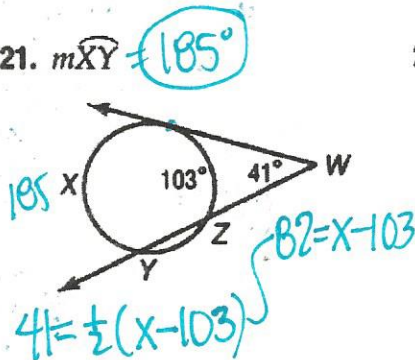
19. $m\angle W$



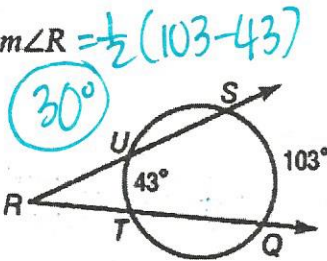
20. $m\widehat{JM}$



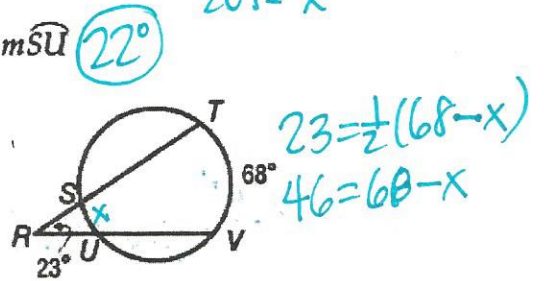
21. $m\widehat{XY}$



22. $m\angle R$



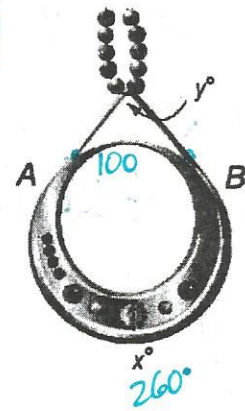
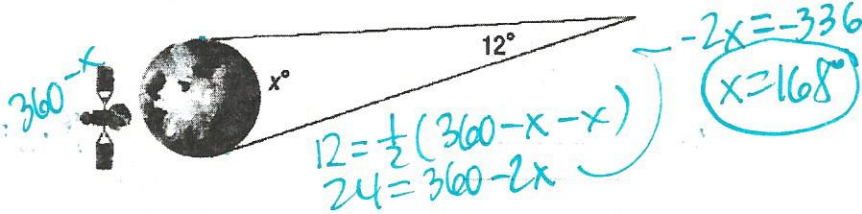
23. $m\widehat{SU}$



24. **JEWELRY** In the circular necklace shown, A and B are tangent points. If $x = 260$, what is y ?

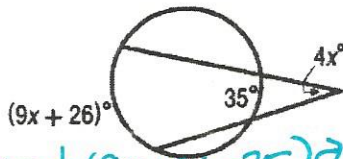
$80^\circ = \frac{1}{2}(260 - 100)$

25. **SPACE** A satellite orbits above Earth's equator. Find x , the measure of the planet's arc, that is visible to the satellite.

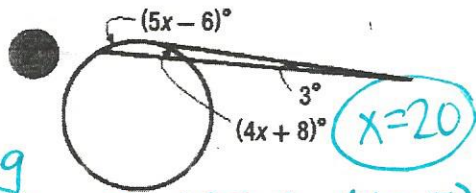


ALGEBRA Find the value of x .

26.

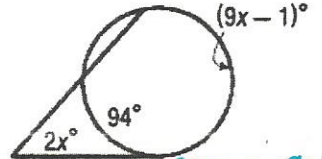


$4x = \frac{1}{2}(9x + 26 - 35)$
 $8x = 9x - 9$
 $x = 9$



$3 = \frac{1}{2}(5x - 6 - (4x + 8))$
 $6 = 5x - 6 - 4x - 8$
 $6 = x - 14$
 $x = 20$

28.



$2x = \frac{1}{2}(9x - 1 - 94)$
 $4x = 9x - 95$
 $-5x = -95$
 $x = 19$

29. **PHOTOGRAPHY** A photographer frames a carousel in his camera shot as shown so that the lines of sight form tangents to the carousel.

a. If the camera's viewing angle is 35° , what is the arc measure of the carousel that appears in the shot?

b. If you want to capture an arc measure of 150° in the photograph, what viewing angle should be used?

a. $35 = \frac{1}{2}(x - (360 - x))$
 $70 = x - 360 + x$
 $70 = 2x - 360$
 $430 = 2x$
 $x = 215^\circ$

b. $x = \frac{1}{2}(210 - 150)$
 $x = 30^\circ$

