

Chapter 9 Review

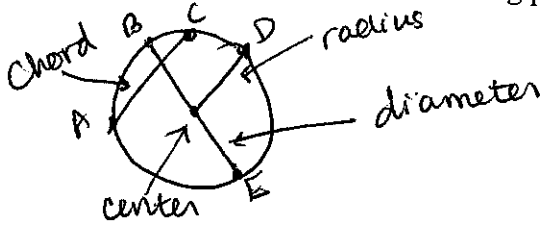
1) What is the difference between a central and inscribed angle? How are their measures the same and different?

Central angle has vertex at center, endpoints on circle; inscribed is vertex and endpoints on circle - Central angle ~~is~~ intercepted arc; inscribed is $\frac{1}{2}$ intercepted arc

2) What is a major arc? A minor arc? A semicircle?

$> 180^\circ$ $< 180^\circ$ $= 180^\circ$

3) Draw a circle and label the following pieces: a radius, diameter, chord, major arc, minor arc, and the center.



\widehat{ADE} - major arc
 \widehat{BC} - minor arc

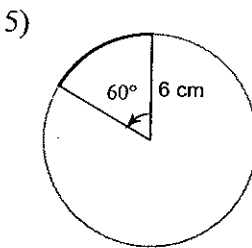
Find the length of each arc.



$$L = \frac{45}{360} \cdot 2\pi(14)$$

$$= \frac{1}{8} \cdot 28\pi$$

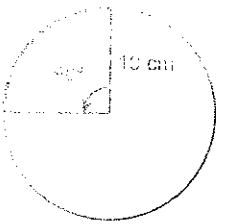
$$= \frac{7\pi}{2}$$



$$L = \frac{60}{360} \cdot 2\pi(6)$$

$$= \frac{1}{6} \cdot 12\pi$$

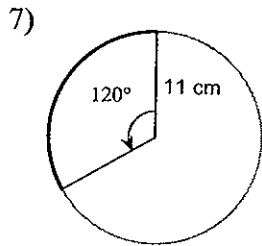
$$= 2\pi$$



$$L = \frac{90}{360} \cdot 2\pi(10)$$

$$= \frac{1}{4} \cdot 20\pi$$

$$= 5\pi$$



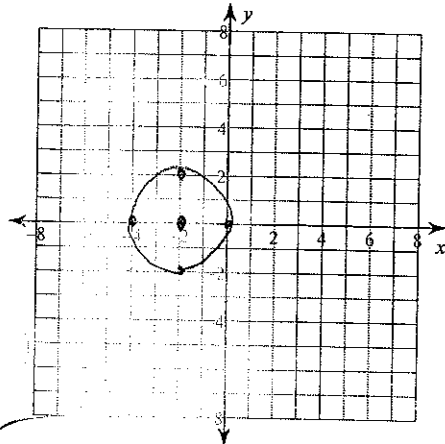
$$L = \frac{120}{360} \cdot 2\pi(11)$$

$$= \frac{1}{3} \cdot 22\pi$$

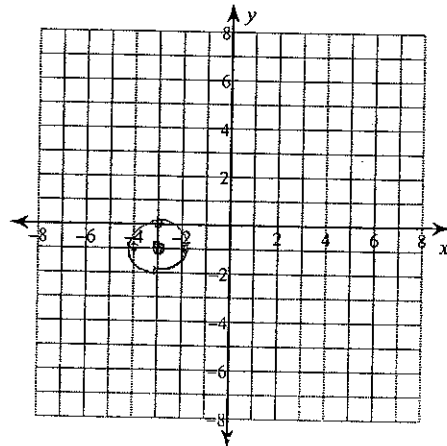
$$= \frac{22\pi}{3}$$

Identify the center and radius of each. Then sketch the graph.

8) $(x+2)^2 + y^2 = 4$ $(-2, 0)$ $r=2$



9) $(x+3)^2 + (y+1)^2 = 1$ $(-3, -1)$ $r=1$



Use the information provided to write the equation of each circle.

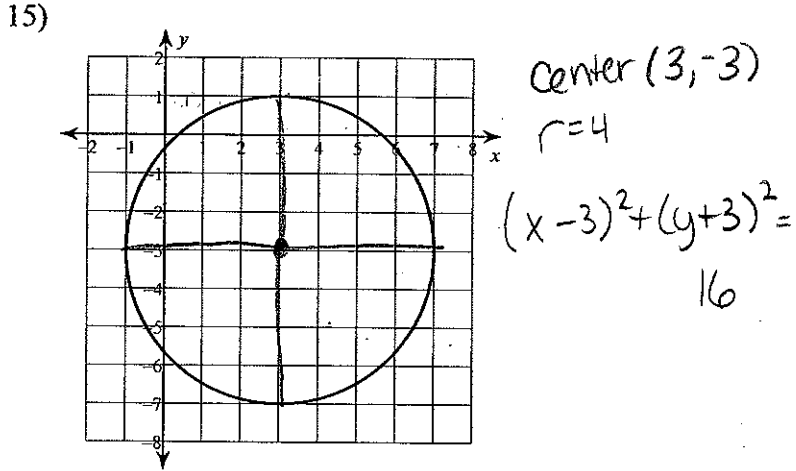
10) Center: (3, 6) $(x-3)^2 + (y-6)^2 = 9$
 Radius: 3

11) Center: (15, 13) $(x-15)^2 + (y-13)^2 = 4$
 Area: 4π

12) Center: (-6, -13) $(x+6)^2 + (y+13)^2 = 25$
 Circumference: 10π
 $r=5$

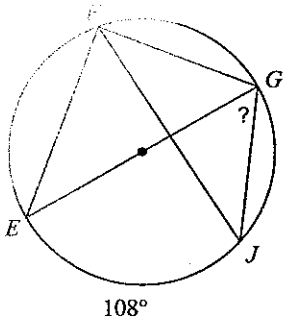
13) Center: (17, 1) $(x-17)^2 + (y-1)^2 = 2$
 Point on Circle: (16, 0)
 $d = \sqrt{(16-17)^2 + (0-1)^2} = \sqrt{(-1)^2 + (-1)^2} = \sqrt{2}$

14) Ends of a diameter: (10, -1) and (-12, -7)
 Center: $(\frac{10+(-12)}{2}, \frac{-1+(-7)}{2}) = (-\frac{2}{2}, \frac{-8}{2}) = (-1, -4)$
 $d = \sqrt{(-1-10)^2 + (-4+1)^2} = \sqrt{(-11)^2 + (-3)^2} = \sqrt{121+9} = \sqrt{130}$

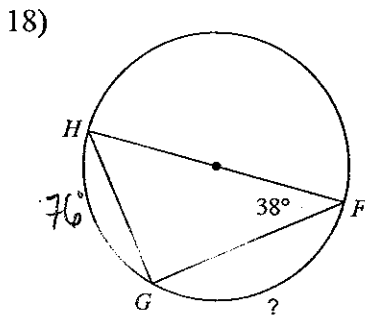
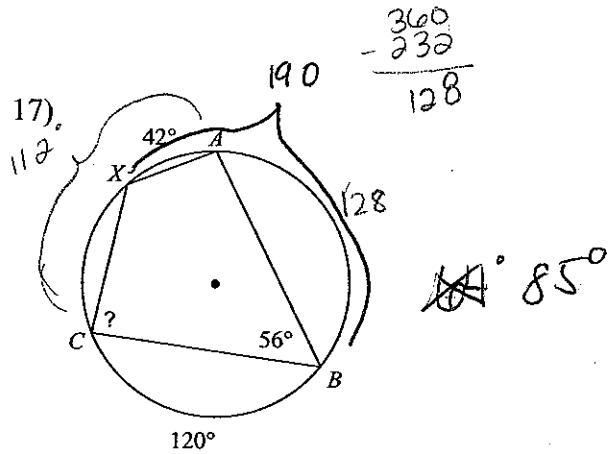


$(x+1)^2 + (y+4)^2 = 130$

Find the measure of the arc or angle indicated.

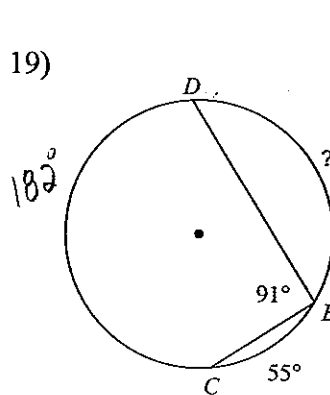


54°



180
 -76
 $\hline 104$

104°

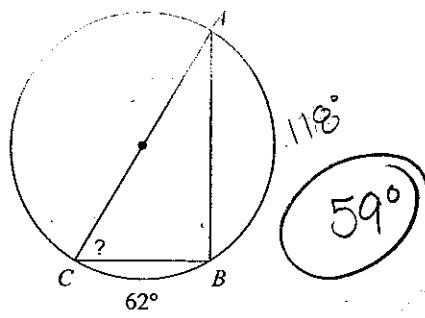


182
 $+55$
 $\hline 237$

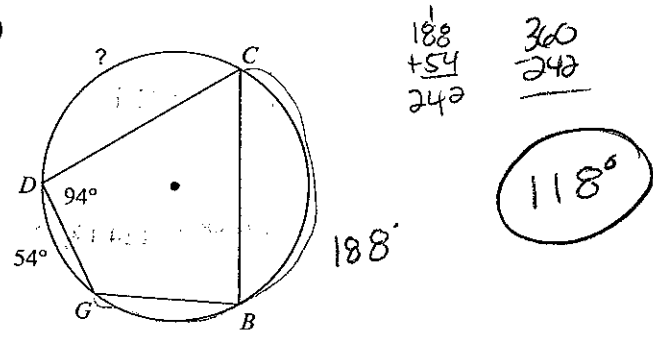
360
 -237
 $\hline 123$

123°

20)



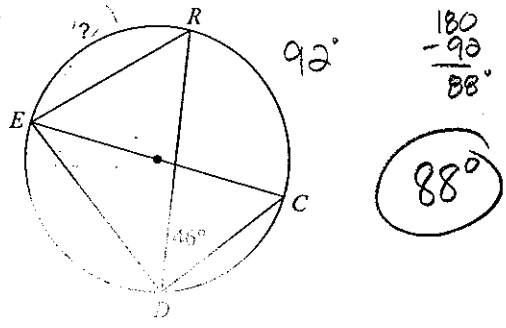
21)



$$\begin{array}{r} 188 \\ + 54 \\ \hline 242 \end{array}$$

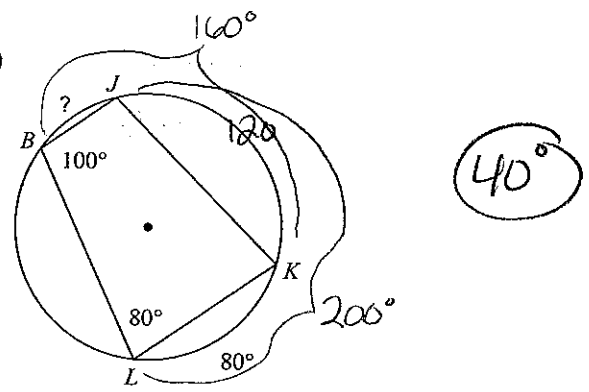
$$\begin{array}{r} 360 \\ - 242 \\ \hline 118 \end{array}$$

22)



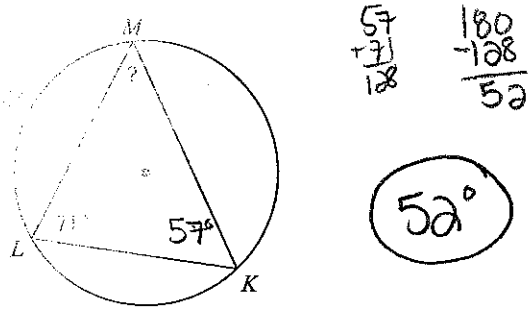
$$\begin{array}{r} 180 \\ - 92 \\ \hline 88 \end{array}$$

23)



$$\begin{array}{r} 360 \\ - 320 \\ \hline 40 \end{array}$$

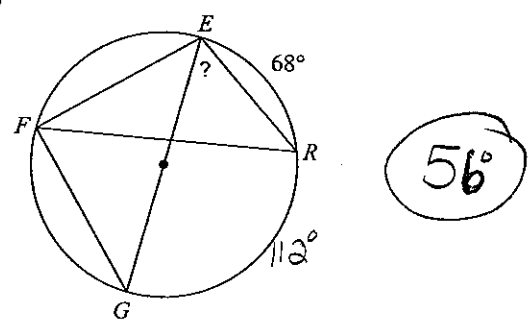
24)



$$\begin{array}{r} 57 \\ + 71 \\ \hline 128 \end{array}$$

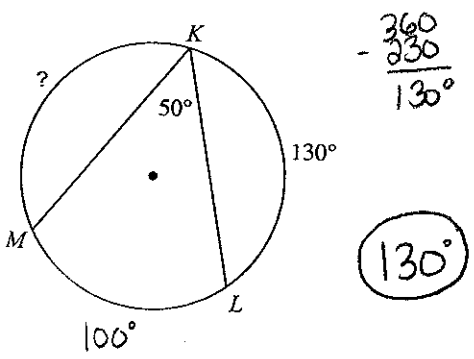
$$\begin{array}{r} 180 \\ - 128 \\ \hline 52 \end{array}$$

25)



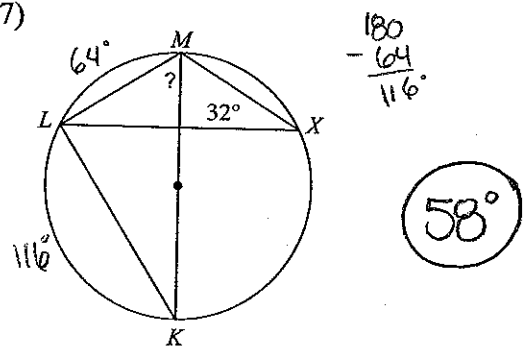
$$\begin{array}{r} 180 \\ - 124 \\ \hline 56 \end{array}$$

26)

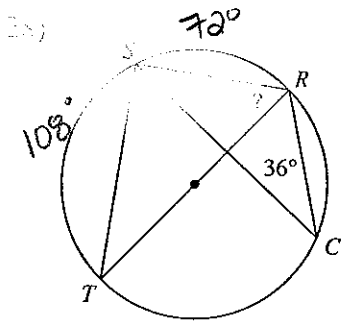


$$\begin{array}{r} 360 \\ - 230 \\ \hline 130 \end{array}$$

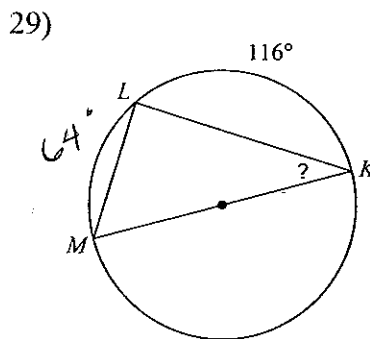
27)



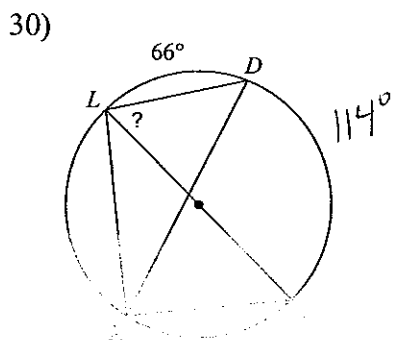
$$\begin{array}{r} 180 \\ - 122 \\ \hline 58 \end{array}$$



54°

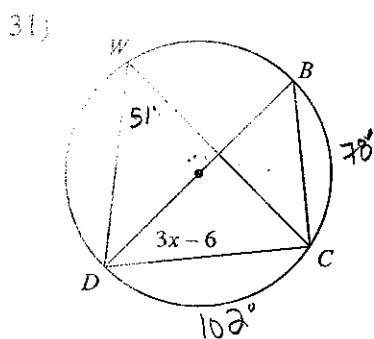


32°

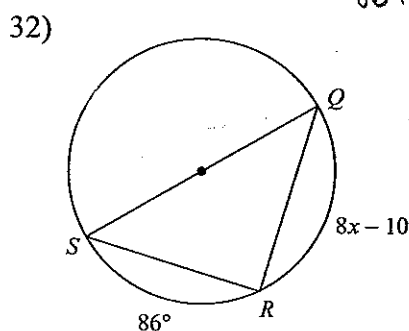


57°

Solve for x.

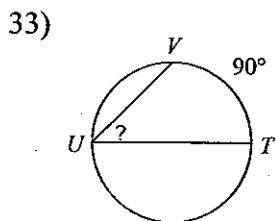


$$\begin{aligned} 2(3x-6) &= 78 \\ 6x-12 &= 78 \\ 6x &= 90 \\ x &= 15 \end{aligned}$$

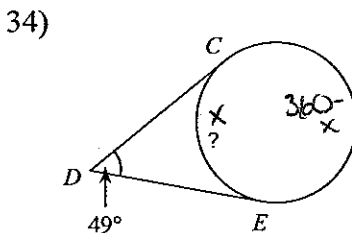


$$\begin{aligned} 86 + 8x - 10 &= 180 \\ 8x + 76 &= 180 \\ 8x &= 104 \\ x &= 13 \end{aligned}$$

Find the measure of the arc or angle indicated. Assume that lines which appear tangent are tangent.

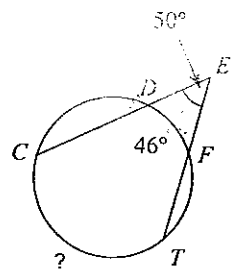


45°



$$\begin{aligned} 2(49) &= 360 - x - x \\ 98 &= 360 - 2x \\ -262 &= -2x \\ 131 &= x \end{aligned}$$

35)

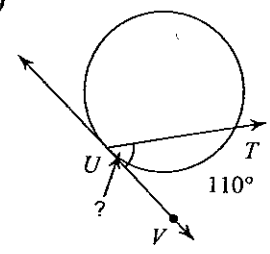


$$2(50) = x - 46$$

$$100 = x - 46$$

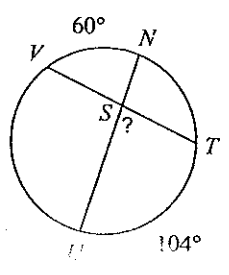
$$146 = x$$

36)



$$55^\circ$$

37)

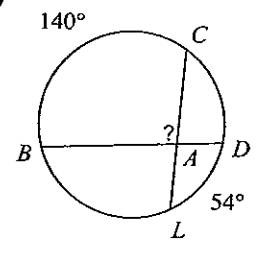


$$2x = 60 + 104$$

$$2x = 164$$

$$x = 82^\circ$$

38)

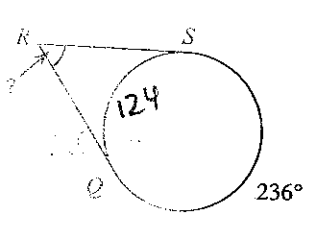


$$2x = 140 + 54$$

$$2x = 194$$

$$x = 97^\circ$$

39)



$$\frac{360}{236}$$

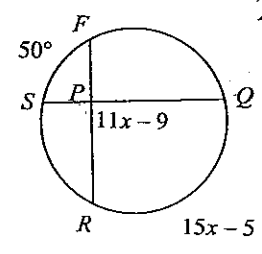
$$\frac{124}{124}$$

$$2x = 236 - 124$$

$$2x = 112$$

$$x = 56^\circ$$

40) Find $m\angle QPR$



$$2(11x - 9) = 50 + 15x - 5$$

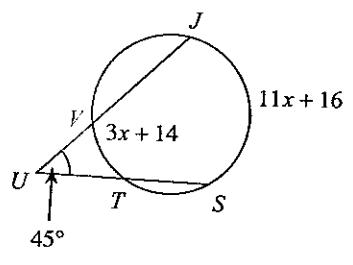
$$22x - 18 = 15x + 45$$

$$7x = 63$$

$$x = 9$$

$$11(9) - 9 = 99 - 9 = 90^\circ$$

41) Find $m\widehat{JS}$



$$2(45) = 11x + 16 - (3x + 14)$$

$$90 = 11x + 16 - 3x - 14$$

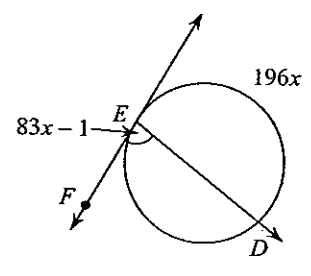
$$90 = 8x + 2$$

$$88 = 8x$$

$$11 = x$$

$$11(11) + 16 = 121 + 16 = 137^\circ$$

42) Find $m\angle DEF$



$$2(83x - 1) = 360 - 196x$$

$$166x - 2 = 360 - 196x$$

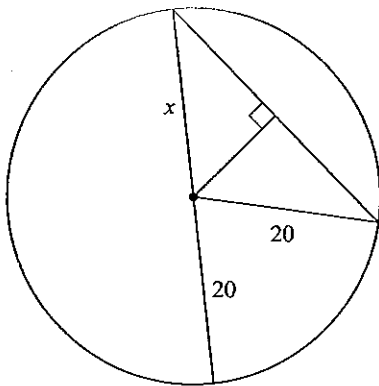
$$362x = 362$$

$$x = 1$$

$$83(1) - 1 = 83 - 1 = 82^\circ$$

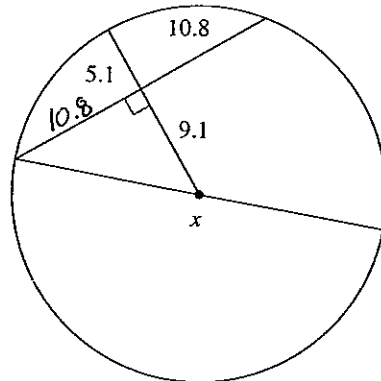
Find the length of the segment indicated. Round your answer to the nearest tenth if necessary.

43)



$$x = 20$$

44)



$$10.8^2 + 9.1^2 = y^2$$

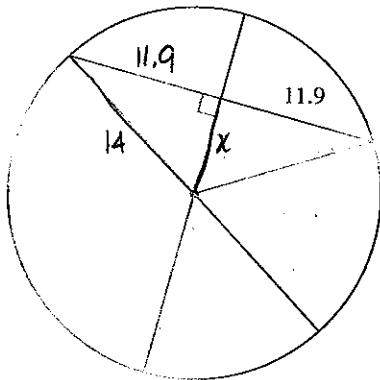
$$116.64 + 82.81 = y^2$$

$$199.45 = y^2$$

$$14.1 = y$$

$$x = 28.2$$

45)



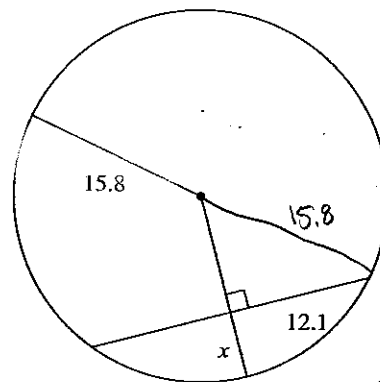
$$x^2 + 11.9^2 = 14^2$$

$$x^2 + 141.61 = 196$$

$$x^2 = 54.39$$

$$x = 7.4$$

46)



$$a^2 + 12.1^2 = 15.8^2$$

$$a^2 + 146.41 = 249.64$$

$$a^2 = 103.23$$

$$a = 10.16$$

$$x = 15.8 - 10.16$$

$$x = 5.6$$