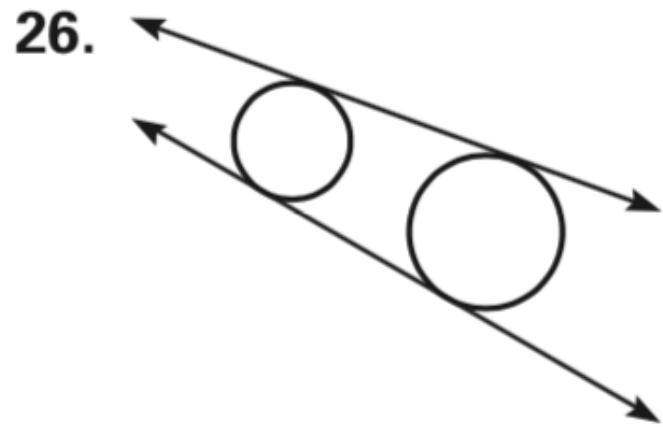
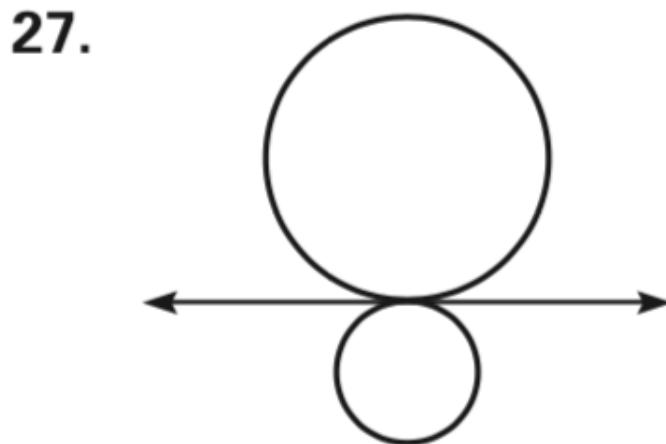


Chapter 10 Test Review

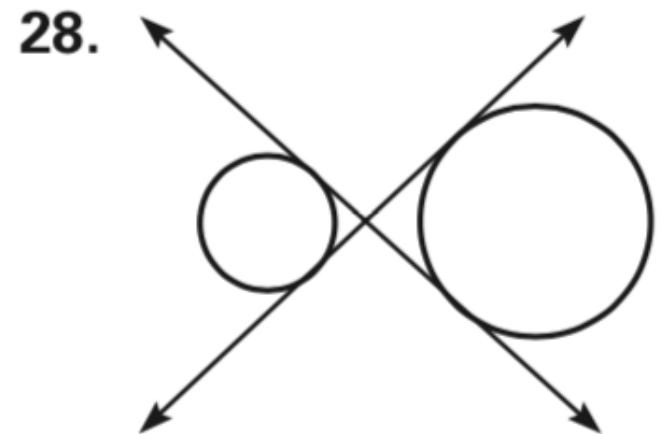
1)



external



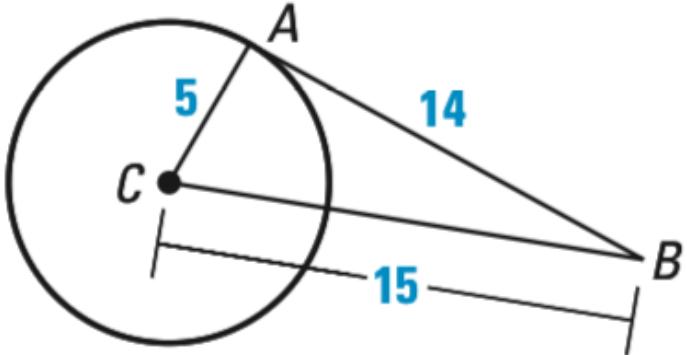
internal



internal

2)

36.



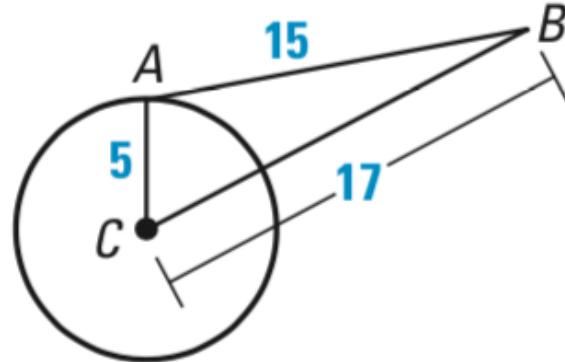
$$15^2 ? 5^2 + 14^2$$

$$225 ? 25 + 196$$

$$225 \neq 221$$

no right \angle
 \Rightarrow not tangent

37.



$$17^2 ? 5^2 + 15^2$$

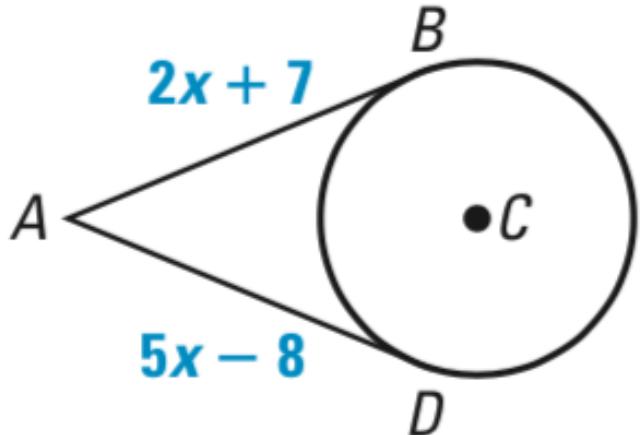
$$289 ? 25 + 225$$

$$289 \neq 250$$

no right \angle
 \Rightarrow not tangent

3)

46.



$$\cancel{2x} + 7 = 5x - 8$$

~~-2x~~ ~~-2x~~

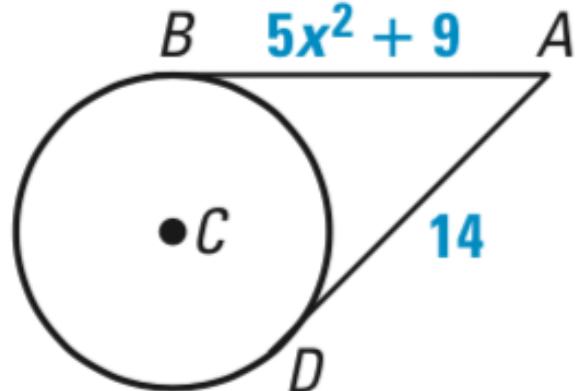
$$7 = 3x - 8$$

~~+8~~ ~~+8~~

$$\frac{15}{3} = \cancel{3x}$$

$$5 = x$$

47.



$$5x^2 + 9 = 14$$

~~-9~~ ~~-9~~

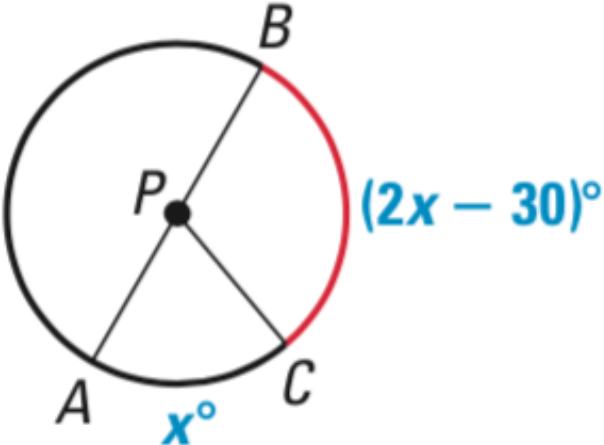
$$\cancel{5x^2} = \frac{5}{5}$$

$$\sqrt{\cancel{5x^2}} = \sqrt{1}$$

$$x = \pm 1$$

4)

36.



$$x + 2x - 30 = 180$$

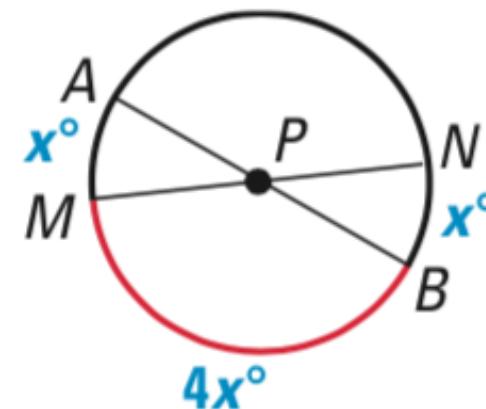
$$\cancel{3x - 30} = \cancel{180}$$

$$\frac{\cancel{3x}}{3} = \frac{210}{3}$$

$$x = 70$$

$$\Rightarrow 2x - 30 \rightarrow 2(70) - 30 = 110^\circ$$

37.



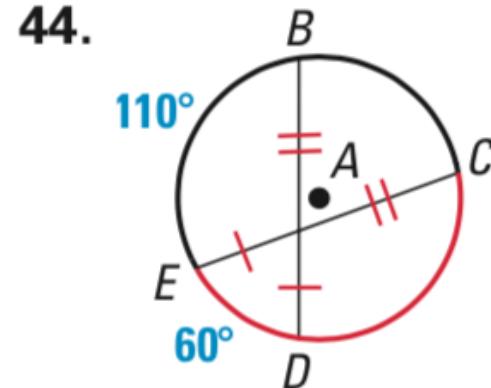
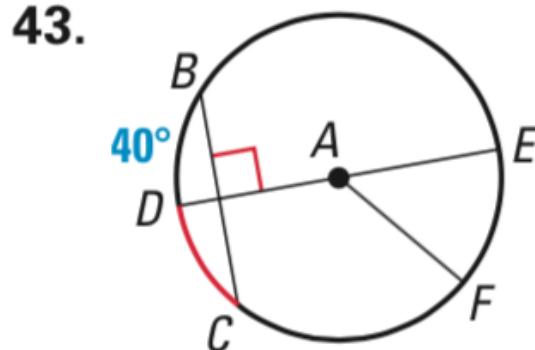
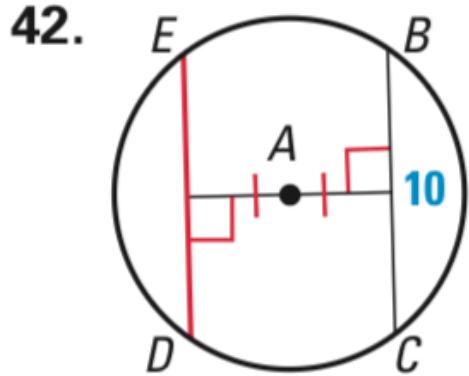
$$x + 4x = 180$$

$$\cancel{5x} = \cancel{180}$$

$$x = 36$$

$$\Rightarrow 4x \rightarrow 4(36) = 144^\circ$$

5)



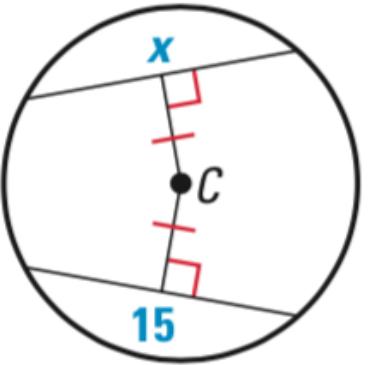
42) 10, in a circle, 2 chords are congruent if they are equidistant from the center

43) 40^* , if a diameter is perpendicular to a chord, it bisects the chord & its arc

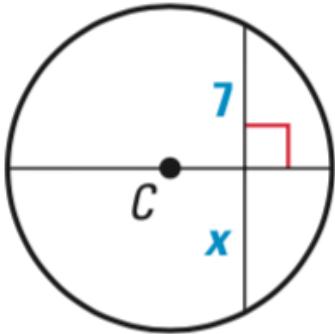
44) 170^* , 2 arcs are congruent if their chords are congruent

6)

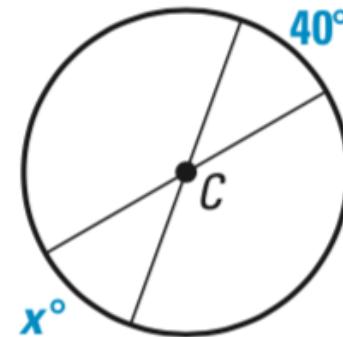
45.



46.



47.



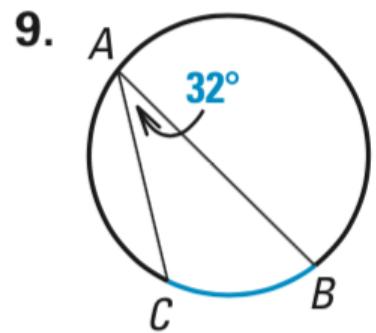
45) 15, in a circle, 2 chords are congruent if they are equidistant from the center

46) 7, if a diameter is perpendicular to a chord, it bisects the chord & its arc

47) 40*, vertical angles →congruent angles → congruent arcs

7)

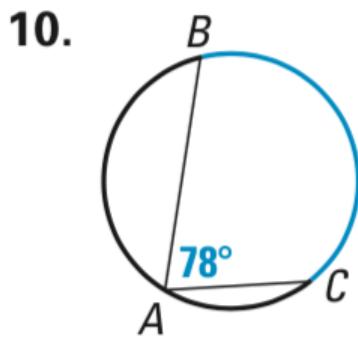
$$\angle = \frac{1}{2} \textcircled{n}$$



$$\angle = \frac{1}{2} \textcircled{n}$$

$$32 = \frac{1}{2} \textcircled{n}$$

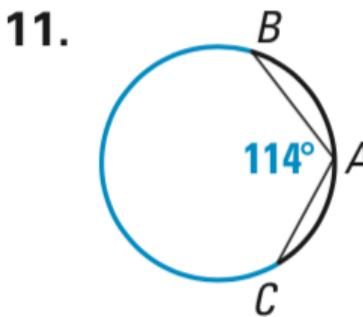
$$64^\circ = \textcircled{n}$$



$$\angle = \frac{1}{2} \textcircled{n}$$

$$78 = \frac{1}{2} \textcircled{n}$$

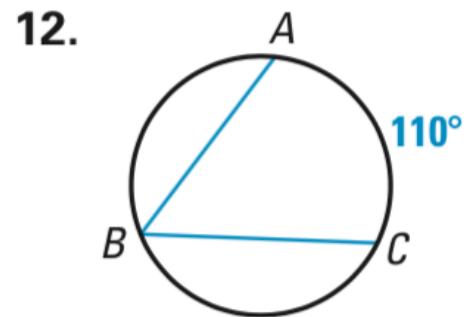
$$156^\circ = \textcircled{n}$$



$$\angle = \frac{1}{2} \textcircled{n}$$

$$114 = \frac{1}{2} \textcircled{n}$$

$$228^\circ = \textcircled{n}$$



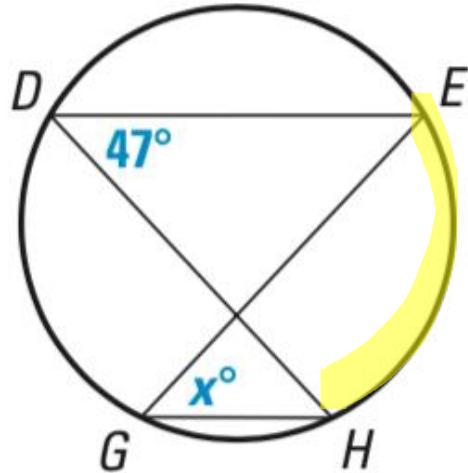
$$\angle = \frac{1}{2} \textcircled{n}$$

$$110 = \frac{1}{2} \textcircled{n}$$

$$220^\circ = \textcircled{n}$$

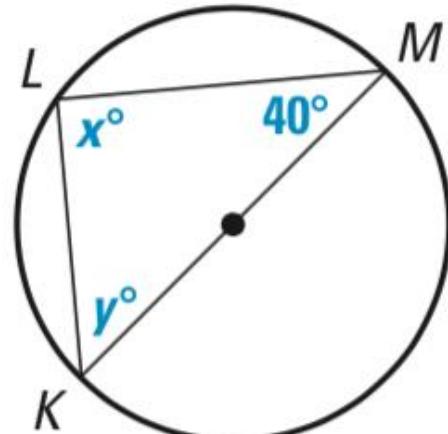
8)

15.



$$x = 47^\circ$$

16.

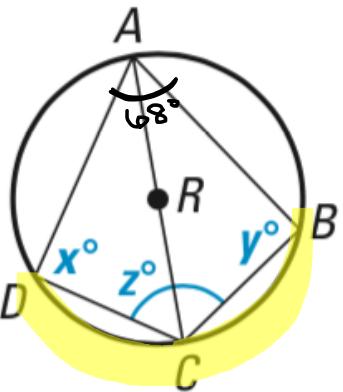


$$x = 90^\circ$$

$$y = 50^\circ \quad (180 - 40 - 90)$$

9-10) Opp. L's are supplementary

18. $m\widehat{BCD} = 136^\circ$



$$\angle A \Rightarrow \angle = \frac{1}{2}n$$

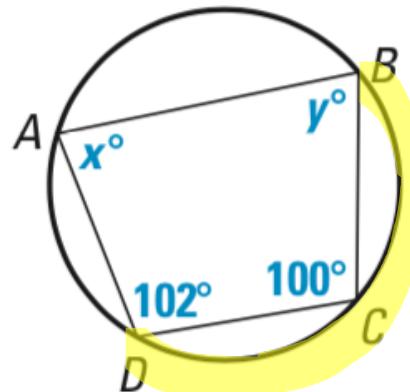
$$\angle = \frac{1}{2}(136)$$

$$\angle = 68^\circ$$

$$z \Rightarrow 180 - 68 = 112^\circ$$

$$x = y = 90$$

19. $m\widehat{BCD} = z^\circ$

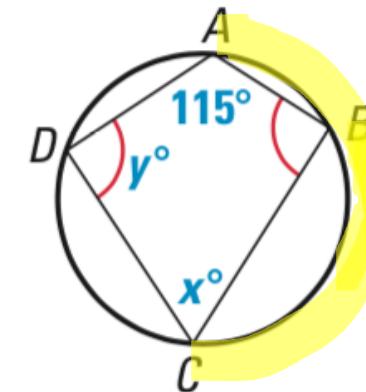


$$x \Rightarrow 180 - 100 = 80^\circ$$

$$y \Rightarrow 180 - 102 = 78^\circ$$

$$z \Rightarrow \angle = \frac{1}{2}n$$
$$80 = \frac{1}{2}n$$
$$160 = n$$

20. $m\widehat{ABC} = z^\circ$

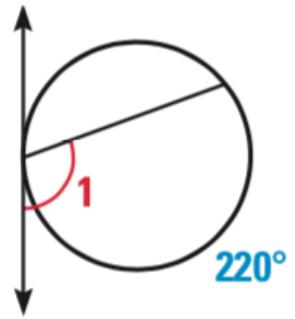


$$x \Rightarrow 180 - 115 = 65^\circ$$

$$y = 90$$

$$z \Rightarrow \angle = \frac{1}{2}n$$
$$90 = \frac{1}{2}n$$
$$180 = n$$

$$11) \angle = \frac{1}{2} \cap$$

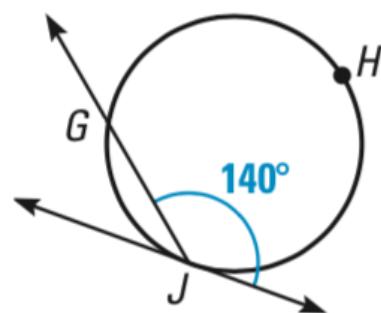


$$\angle = \frac{1}{2} \cap$$

$$\angle = \frac{1}{2}(220)$$

$$\angle = 110^\circ$$

$$9. m\widehat{GHJ}$$

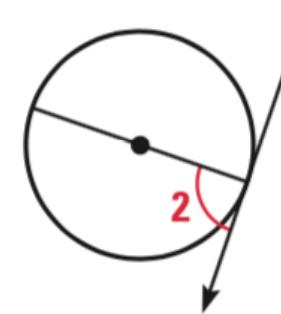


$$\angle = \frac{1}{2} \cap$$

$$140 = \frac{1}{2} \cap$$

$$280 = \cap$$

$$10. m\angle 2$$

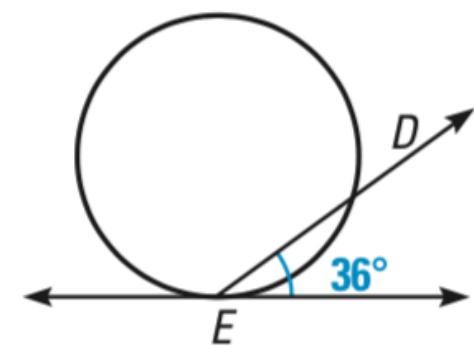


$$\angle = \frac{1}{2} \cap$$

$$\angle = \frac{1}{2}(180)$$

$$\angle = 90^\circ$$

$$11. m\widehat{DE}$$



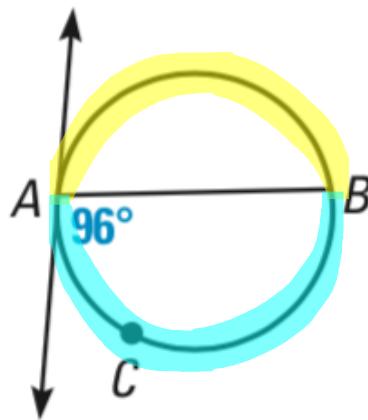
$$\angle = \frac{1}{2} \cap$$

$$36 = \frac{1}{2} \cap$$

$$72 = \cap$$

$$12) \angle = \frac{1}{2} \cap$$

$$14. m\widehat{AB} = x^\circ$$



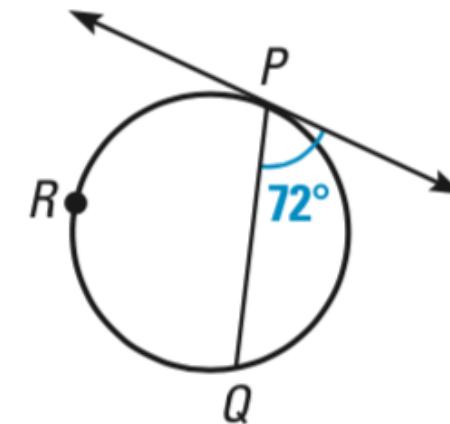
$$\angle = \frac{1}{2} \cap$$

$$96 = \frac{1}{2} \cap$$

$$\underline{192} = \cap$$

$$360 - 192 = \underline{168^\circ}$$

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



$$\angle = \frac{1}{2} \cap$$

$$72 = \frac{1}{2}(5x + 17)$$

$$72 = 2.5x + 8.5$$

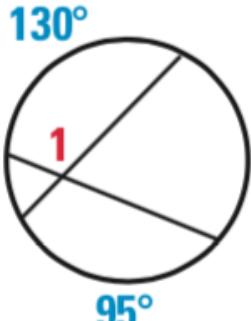
$$\frac{63.5}{2.5} = \cancel{\frac{2.5x}{2.5}}$$

$$25.4 = x$$

13)

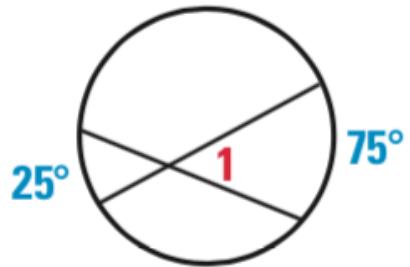
$$\angle = \frac{1}{2}(\textcircled{n} + \textcircled{n})$$

17.



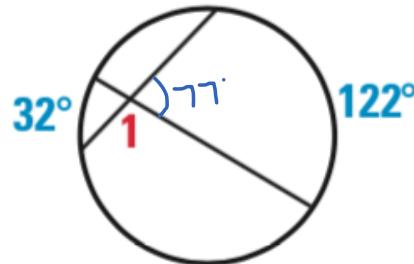
$$\begin{aligned}\angle &= \frac{1}{2}(\textcircled{n} + \textcircled{n}) \\ \angle &= \frac{1}{2}(130 + 95) \\ \angle &= 112.5^\circ\end{aligned}$$

18.



$$\begin{aligned}\angle &= \frac{1}{2}(\textcircled{n} + \textcircled{n}) \\ \angle &= \frac{1}{2}(25 + 75) \\ \angle &= 50^\circ\end{aligned}$$

19.



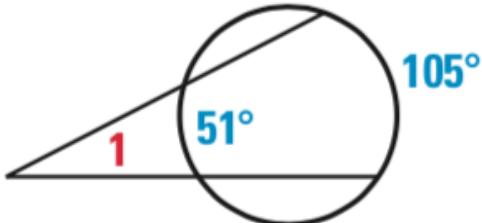
$$\begin{aligned}\angle &= \frac{1}{2}(\textcircled{n} + \textcircled{n}) \\ \angle &= \frac{1}{2}(32 + 122) \\ \angle &= 77^\circ\end{aligned}$$

$$\angle 1 \rightarrow 180 - 77 = 103^\circ$$

14)

$$\angle = \frac{1}{2}(\textcircled{n} - \textcircled{n})$$

20.

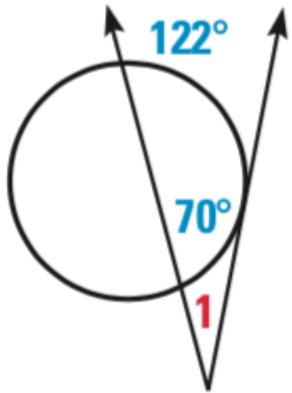


$$\angle = \frac{1}{2}(\textcircled{n} - \textcircled{n})$$

$$\angle = \frac{1}{2}(105 - 51)$$

$$\angle = 27^\circ$$

21.

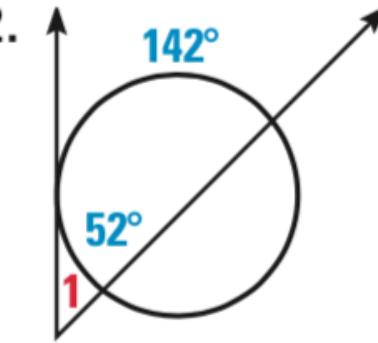


$$\angle = \frac{1}{2}(\textcircled{n} - \textcircled{n})$$

$$\angle = \frac{1}{2}(122 - 70)$$

$$\angle = 26^\circ$$

22.



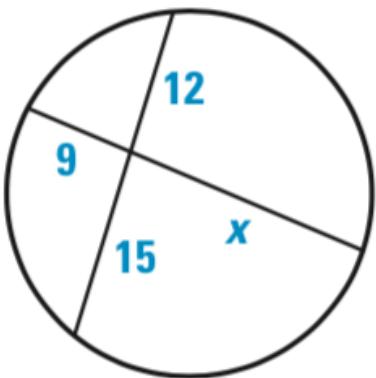
$$\angle = \frac{1}{2}(\textcircled{n} - \textcircled{n})$$

$$\angle = \frac{1}{2}(142 - 52)$$

$$\angle = 45^\circ$$

15)

10. $x \cdot ? = 12 \cdot ?$

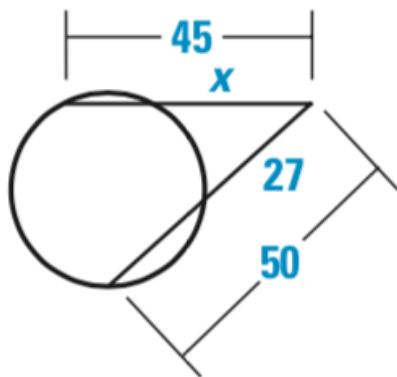


$$x \cdot 9 = 12 \cdot 15$$

~~$$\frac{9x}{9} = \frac{180}{9}$$~~

$$x = 20$$

11. $x \cdot ? = ? \cdot 50$

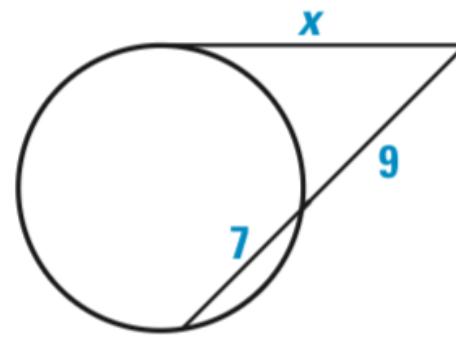


$$x \cdot 45 = 27 \cdot 50$$

~~$$\frac{45x}{45} = \frac{1350}{45}$$~~

$$x = 30$$

12. $x^2 = 9 \cdot ?$



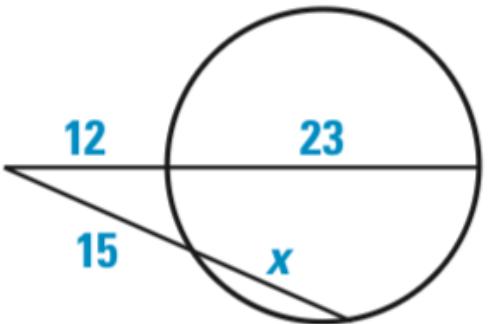
$$x^2 = 9 \cdot 16$$

~~$$\sqrt{x^2} = \sqrt{144}$$~~

$$x = 12$$

16)

13.



$$12 \cdot 35 = 15(15+x)$$

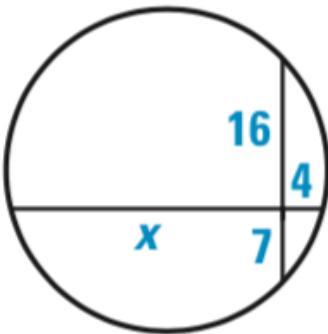
$$420 = \cancel{225} + 15x$$

$$- \cancel{225}$$

$$\frac{195}{15} = \cancel{\frac{15x}{15}}$$

$$13 = x$$

14.

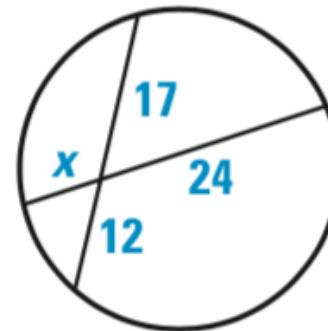


$$4 \cdot x = 16 \cdot 7$$

~~$$\frac{4x}{4} = \frac{112}{4}$$~~

$$x = 28$$

15.



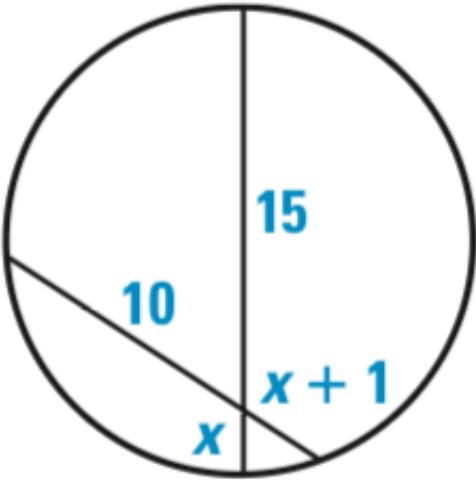
$$24 \cdot x = 17 \cdot 12$$

~~$$\frac{24x}{24} = \frac{204}{24}$$~~

$$x = 8.5$$

17)

16.



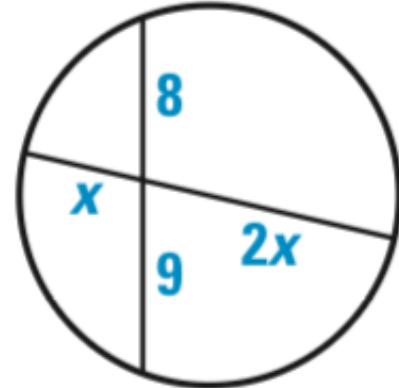
$$10 \cdot (x+1) = 15 \cdot x$$

$$\begin{array}{r} 10x + 10 = 15x \\ -10x \quad \quad \quad -10x \end{array}$$

$$\frac{10}{5} = \cancel{\frac{5x}{5}}$$

$$2 = x$$

17.



$$2x \cdot x = 9 \cdot 8$$

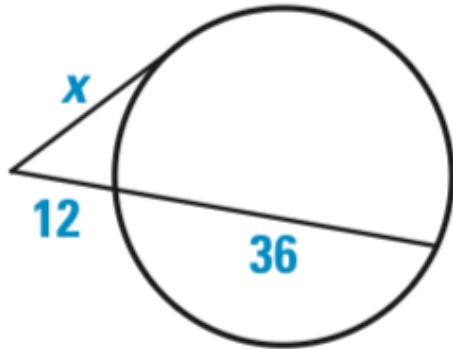
$$\cancel{\frac{2x^2}{2}} = \frac{72}{2}$$

$$\sqrt{x^2} = \sqrt{36}$$

$$x = 6$$

18)

20.

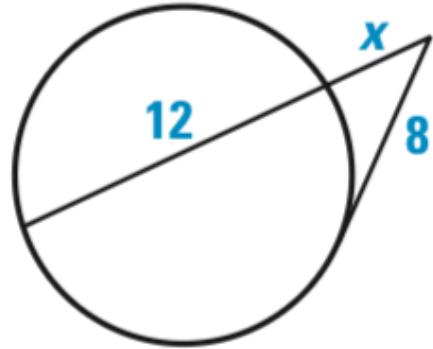


$$x^2 = 12 \cdot 48$$

$$\sqrt{x^2} = \sqrt{576}$$

$$x = 24$$

21.



$$8^2 = x(x+12)$$

$$64 = x^2 + 12x \quad \text{STOP}$$

19)

7. $(x - 4)^2 + (y - 3)^2 = 16$

center: (4, 3)
radius: 4

8. $(x - 5)^2 + (y - 1)^2 = 25$

center: (5, 1)
radius: 5

9. $x^2 + y^2 = 4$

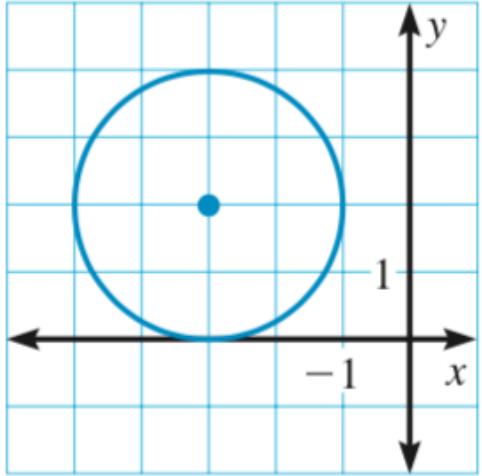
center: (0, 0)
radius: 2

10. $(x + 2)^2 + (y - 3)^2 = 36$

center: (-2, 3)
radius: 6

20)

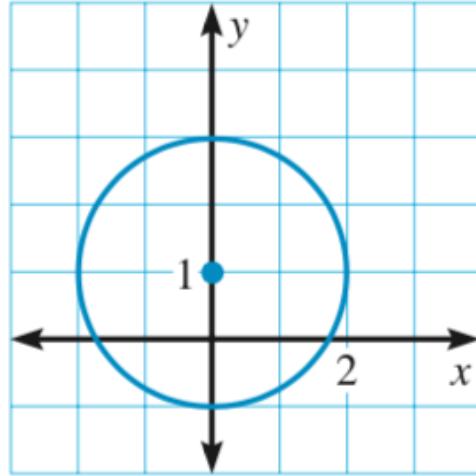
13.



$$C: (-3, 2); r = 2$$

$$(x+3)^2 + (y-2)^2 = 4$$

14.

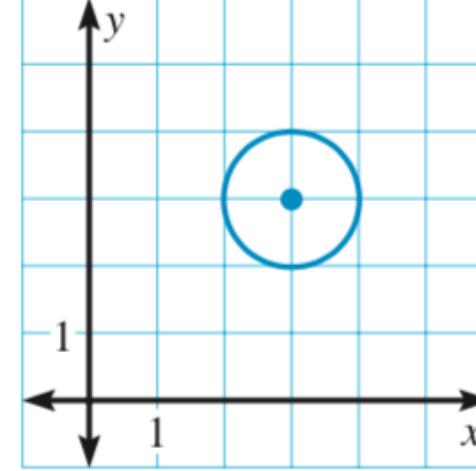


$$C: (0, 1); r = 2$$

$$(x-0)^2 + (y-1)^2 = 4$$

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

15.



$$C: (3, 3); r = 1$$

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

21)

19. center $(0, 0)$, radius 1

$$(x-0)^2 + (y-0)^2 = 1$$

$$x^2 + y^2 = 1$$

20. center $(4, 0)$, radius 4

$$(x-4)^2 + (y-0)^2 = 16$$

$$(x-4)^2 + y^2 = 16$$

21. center $(3, -2)$, radius 2

$$(x-3)^2 + (y+2)^2 = 4$$

$$(x-3)^2 + (y+2)^2 = 4$$

22. center $(-1, -3)$, radius 6

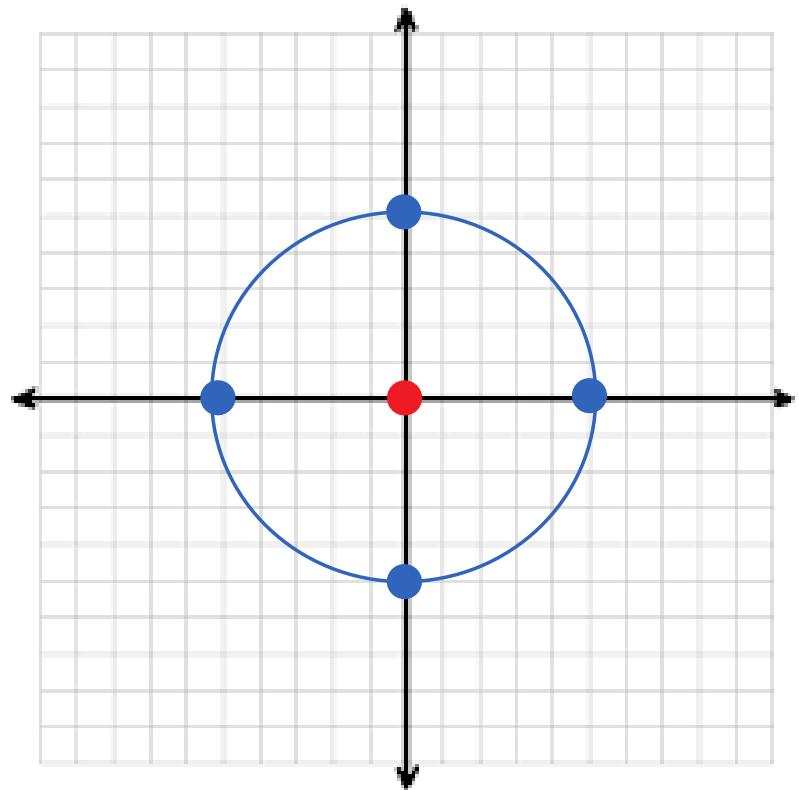
$$(x+1)^2 + (y+3)^2 = 36$$

$$(x+1)^2 + (y+3)^2 = 36$$

22)

$$27. x^2 + y^2 = 25$$

$$C: (0,0); r=5$$



$$28. x^2 + (y - 4)^2 = 1$$

$$C: (0,4); r=1$$

