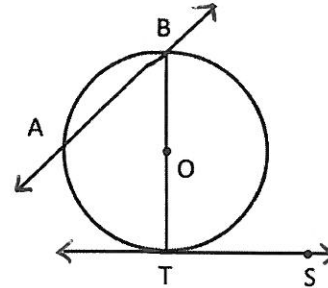


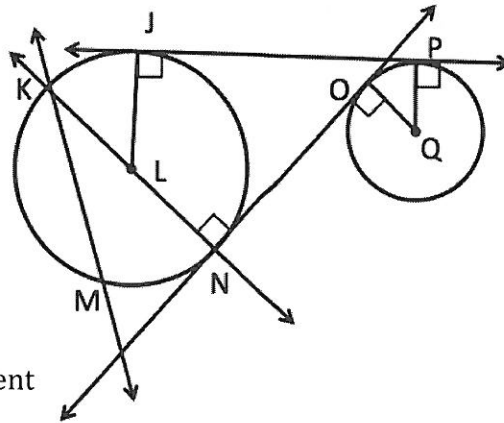
Using the figure on the right, name each of the following. (Use proper notation)

- |  |   |
|--|---|
| 1. Radius<br>$\overline{BO}$ $\overline{OT}$ | 2. Diameter<br>$\overline{BT}$          |
| 3. Secant<br>$\overleftrightarrow{BA}$       | 4. Tangent<br>$\overleftrightarrow{ST}$ |
| 5. Chord<br>$\overline{BT}$                  | 6. Point of tangency<br>$T$             |



Match the notation with the term that best describes it.

- |                               |                            |
|-------------------------------|----------------------------|
| 7. $O$                        | A. Center                  |
| 8. $\overline{NO}$            | B. Chord                   |
| 9. $\overline{QP}$            | C. Diameter                |
| 10. $\overline{MK}$           | D. Radius                  |
| 11. $L$                       | E. Point of Tangency       |
| 12. $\overline{KN}$           | F. Common External Tangent |
| 13. $\overline{MK}$           | G. Common Internal Tangent |
| 14. $\overleftrightarrow{JP}$ | H. Secant                  |



Use the figure on the right to answer the following.

15. If  $BP = 4$ , find  $SP$ .

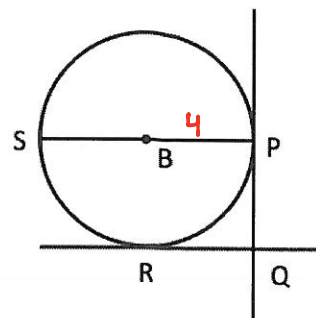
$SP = 8$

16. If  $\overleftrightarrow{PQ}$  is tangent to circle B, find  $m\angle BPQ$ .

$m\angle BPQ = 90^\circ$

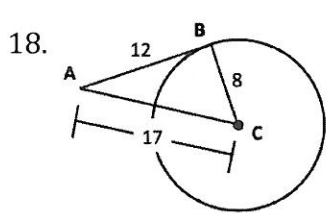
17. If  $\overleftrightarrow{RQ}$  is tangent to circle B, how is  $\overline{BR}$  related to  $\overleftrightarrow{RQ}$ ?

$\overline{BR} \perp \overleftrightarrow{RQ}$

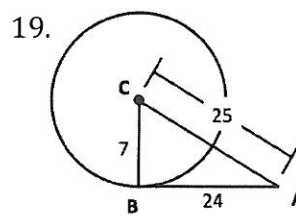


$\overline{BP}$  is the radius of Circle B

Tell whether  $\overleftrightarrow{AB}$  is tangent to Circle C. Show your work.

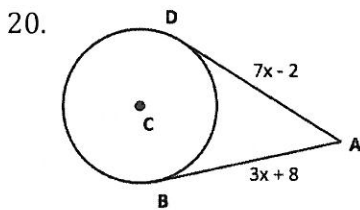


$\overleftrightarrow{AB}$  is not tangent.

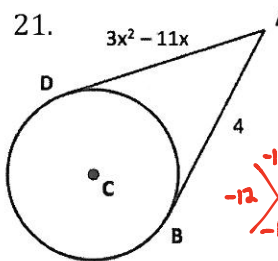


$\overleftrightarrow{AB}$  is tangent.

$\overline{AB}$  and  $\overline{AD}$  are tangent to Circle C. Solve for x.



$$\begin{aligned} 7x - 2 &= 3x + 8 \\ -3x & \quad -3x \\ \hline 4x &= 10 \\ \frac{4x}{4} &= \frac{10}{4} \\ x &= 2.5 \end{aligned}$$



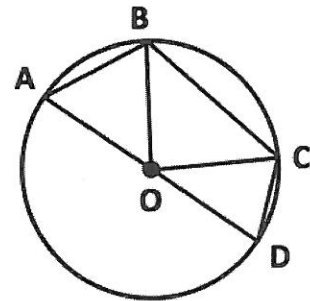
$$\begin{aligned} 3x^2 - 11x &= 4 \\ 3x^2 - 11x - 4 &= 0 \\ \frac{-12 \pm \sqrt{144 - 4(3)(-4)}}{2(3)} &= \frac{-12 \pm \sqrt{144 + 48}}{6} \\ &= \frac{-12 \pm \sqrt{192}}{6} \\ &= \frac{-12 \pm 13.856}{6} \\ x &= 4 \quad \text{or} \quad x = \frac{-1}{3} \end{aligned}$$

Use the figure below to answer the following questions.

22. If  $m\angle AOB = 60$ , find  $m\widehat{AB} = 60^\circ$

23. If  $m\angle BOC = 90$ , find  $m\widehat{BC} = 90^\circ$

~~24.~~ Name the inscribed polygon in the figure.



Determine whether the arc is a minor arc, a major arc, or a semicircle of Circle C. (Assume the picture is drawn to scale)

25.  $\widehat{AE}$  Minor

26.  $\widehat{ADB}$  Major

27.  $\widehat{FDE}$  Semicircle

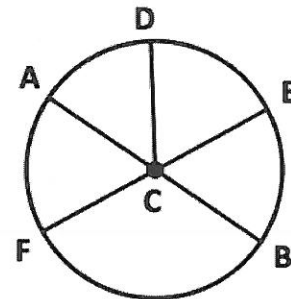
28.  $\widehat{DFB}$  Major

29.  $\widehat{BE}$  Minor

30.  $\widehat{FA}$  Minor

31.  $\widehat{BDA}$  Semicircle

32.  $\widehat{FB}$  Minor



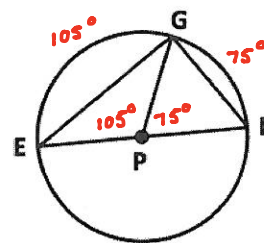
Use the figure on the right to answer the following questions.

33. Find  $m\widehat{FG}$ .  
=  $75^\circ$

34. Find  $m\widehat{EGF}$ .  
=  $180^\circ$

35. Find  $m\widehat{GE}$ .  
=  $105^\circ$

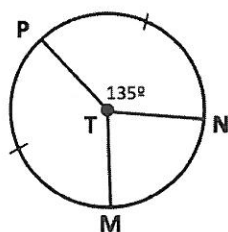
36. Find  $m\widehat{EFG}$ .  
=  $255^\circ$



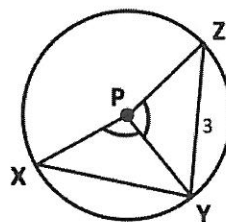
$m\angle FPG = 75^\circ$

Answer the following questions.

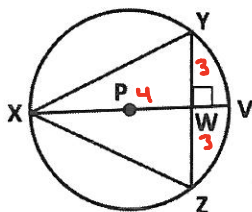
37. Find  $m\widehat{MN} = 90^\circ$



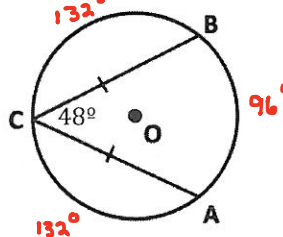
38. Find  $XY = 3$



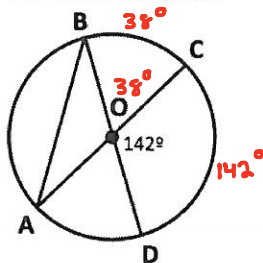
39.  $ZY = 6$ ,  $XW = 4$ , find  $XY = 5$



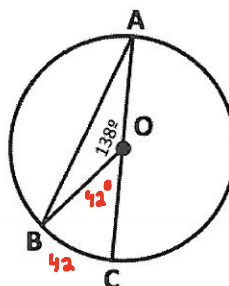
40. Find  $m\widehat{BC} = 132^\circ$



41. Find  $m\angle BAC = 19^\circ$



42. Find  $m\angle BAC = 21^\circ$



Find the following measurements using the figure below.

43. Find  $m\angle ABC$   
 $= 90^\circ$

44. Find  $m\angle CED$   
 $= 43^\circ$

45. Find  $m\angle BDE$   
 $= 47.5^\circ$

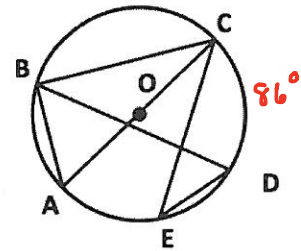
46. Find  $m\angle CBD$   
 $= 43^\circ$

47. Find  $m\angle ABD$

48. Find  $m\angle BCE$   
 $= 47.5^\circ$

49. Find  $m\widehat{AD}$

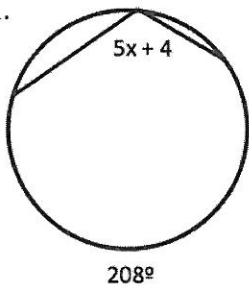
50. Find  $m\widehat{ABC}$   
 $= 180^\circ$



$m\widehat{CD} = 86^\circ$  and  
 $m\widehat{BE} = 95^\circ$

Find the value of x.

51.



$$5x + 4 = \frac{208}{2}$$

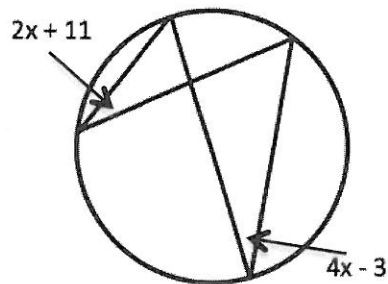
$$\cancel{5x} + 4 = 104$$

$$\quad \quad \quad \cancel{-4} \quad \quad \quad \cancel{-4}$$

$$\frac{5x}{5} = \frac{100}{5}$$

$$x = 20$$

52.



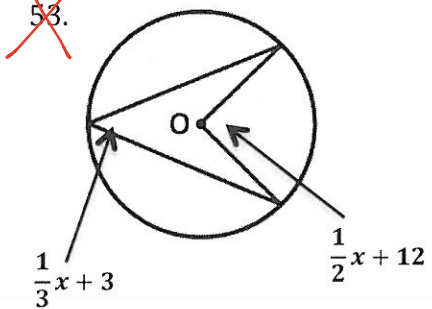
$$4x - 3 = 2x + 11$$

$$\cancel{-2x} - 3 = \cancel{-2x} + 11$$

$$\frac{2x}{2} = \frac{14}{2}$$

$$x = 7$$

~~53.~~



Find the center and radius of each circle.

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

Center:  $(4, 3)$

Radius:  $r = 4$

2.  $(x - 5)^2 + (y - 10)^2 = 54$

Center:  $(5, 10)$

Radius:  $r = 3\sqrt{6}$

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

Center:  $(0, 0)$

Radius:  $r = 2$

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

Center:  $(-2, 3)$

Radius:  $r = 6$

5.  $(x + 5)^2 + (y + 3)^2 = 1$

Center:  $(-5, -3)$

Radius:  $r = 1$

6.  $(x - \frac{1}{2})^2 + (y + \frac{3}{4})^2 = \frac{1}{4}$

Center:  $(\frac{1}{2}, -\frac{3}{4})$

Radius:  $r = \frac{1}{2}$

Given the center and radius, write the equation of each circle. (Leave in standard form.)

7. Center =  $(0, 3)$ , Radius = 4

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

8. Center =  $(-2, 5)$ , Radius = 9

$$(x + 2)^2 + (y - 5)^2 = 81$$

9. Center =  $(5, -1)$ , Radius =  $2\sqrt{7}$

$$(x - 5)^2 + (y + 1)^2 = 28$$

10. Center =  $(-6, -8)$ , Radius = 7

$$(x + 6)^2 + (y + 8)^2 = 49$$

Find the center and radius of each circle.

\* Must convert to standard form \*

11.  $x^2 + y^2 - 4x - 2y = -1$

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

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

Center: (2, 1)

Radius:  $r = 2$

12.  $x^2 + y^2 + 8x - 4y = -4$

$$x^2 + 8x + 16 + y^2 - 4y + 4 = -4$$

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

Center: (-4, 2)

Radius:  $r = 4$

13.  $x^2 + y^2 - 16x = 0$

$$x^2 - 16x + 64 + y^2 = 0$$

$$(x-8)^2 + y^2 = 64$$

Center: (8, 0)

Radius:  $r = 8$

~~Write the equation of each circle.~~

~~14. Center = (1, 2)~~

~~Point on the Circle = (4, 6)~~

~~15. Center = (3, 2)~~

~~Point on the Circle = (5, 2)~~