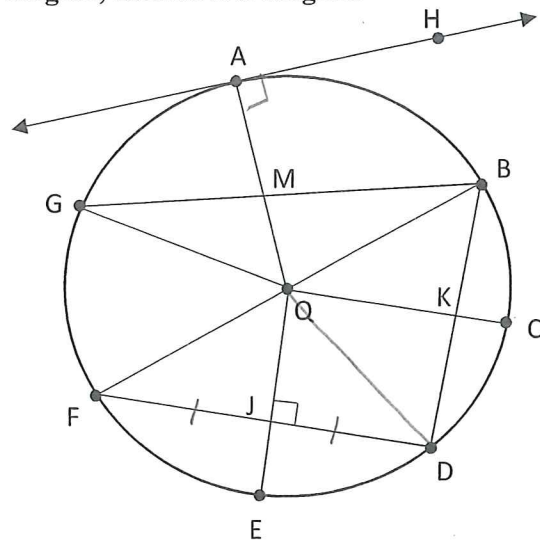


Use the figure of Circle Q at right to answer #1 - #13. If a line appears tangent, assume it is tangent.

#1 - #10: Classify the object. Be as specific as possible.

1. \overline{FB} is Diameter
2. A is Point of tangency
3. $\angle EQC$ is Central angle
4. $\angle FBD$ is inscribed angle
5. \overline{QE} is radius
6. \overline{HA} is tangent line
7. $\angle QAH$ is Right Angle
8. $\triangle FBD$ is inscribed in circle Q.
9. \widehat{BDG} is major arc
10. \widehat{BG} is minor arc



11. Name an isosceles triangle: $\triangle FQD$
12. Name a pair of congruent segments that are NOT RADII: $\overline{FJ} \cong \overline{JD}$

Use circle Z to answer questions #13 - #16.

13. Name two congruent segments that are NOT RADII, using only the points shown:

$\widehat{JK} \cong \widehat{PN}$

14. Name two congruent arcs: $\widehat{JK} \cong \widehat{PN}$

15. If $JK = 10$, find the diameter of circle Z.

$$5^2 + 12^2 = x^2$$

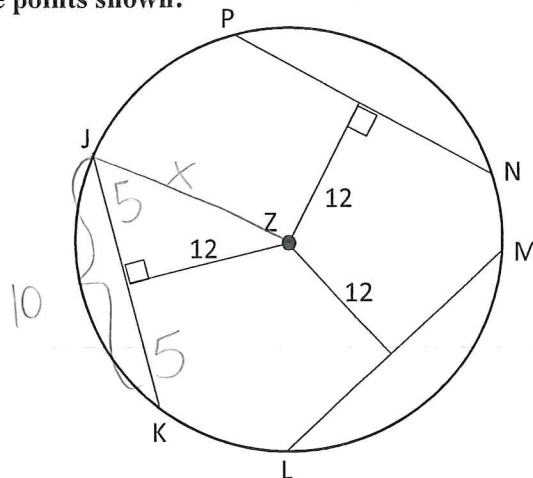
$$25 + 144 = x^2$$

$$\sqrt{169} = \sqrt{x^2}$$

$$x = 13$$

JZ radius: 13

Diameter = 26



Use the figure of circle F at right to find the missing arc or angle measures.

16. $m\widehat{KA} = 50^\circ$ 17. $m\widehat{BA} = 58^\circ$

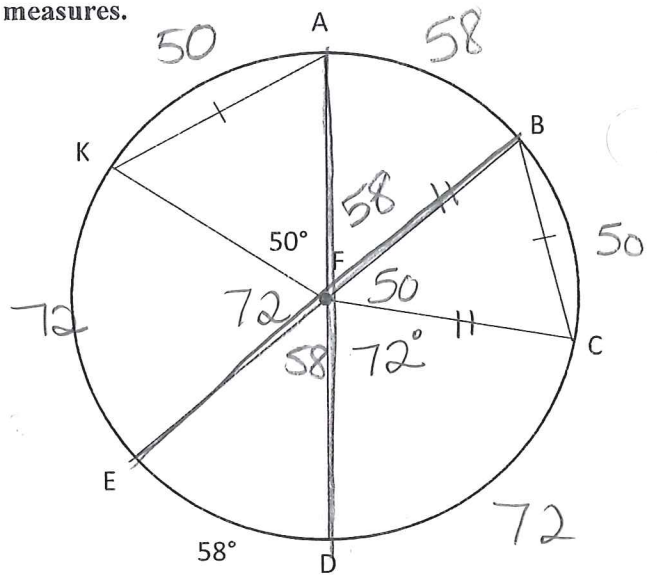
18. $m\widehat{KE} = 72^\circ$ 19. $m\widehat{BC} = 50^\circ$

20. $m\angle EFC = 130^\circ$ 21. $m\angle AFD = 180^\circ$

22. $m\widehat{CKD} = 288^\circ$ 23. $m\widehat{ABK} = 310^\circ$

24. $m\angle KFC = 158^\circ$ 25. $m\angle FBC = 65^\circ$

26. $m\widehat{ECA} = 238^\circ$ 27. $m\widehat{KD} = 130^\circ$



Use the figure of circle T at right. Segments that appear tangent are tangent.

$m\widehat{AYH} = 250^\circ$ $MA = 12x - 7$ $MH = 7x + 13$

28. $m\widehat{AH} = 110^\circ$

29. $m\angle ATH = 100^\circ$

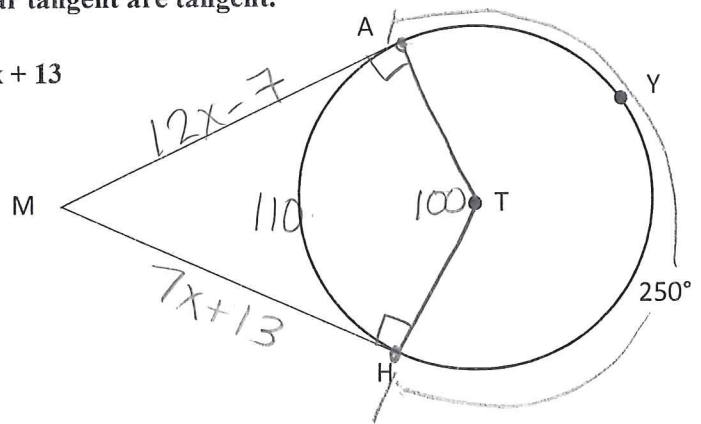
30. $m\angle MAT = 90^\circ$

31. $m\angle MHT = 90^\circ$

32. $m\angle M = 80^\circ$ $360 - 90 - 90 - 100$

33. $x = 4$

34. $MA = 41$



$$12x - 7 = 7x + 13$$

$$\begin{array}{r} -7x \\ -7x \end{array}$$

$$5x - 7 = 13$$

$$\begin{array}{r} +7 \\ +7 \end{array}$$

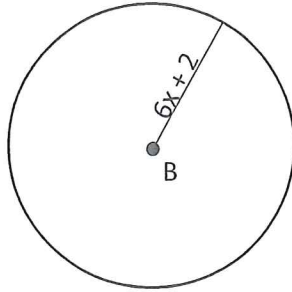
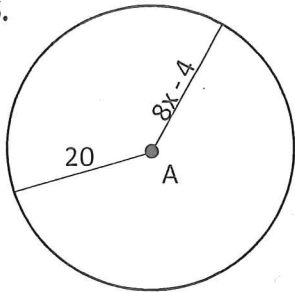
$$5x = 20$$

$$12(4) - 7$$

$$48 - 7$$

Find the radius of each circle, and determine whether the following pairs of circles are congruent.

35.



$x = \underline{3}$

Radius of $\odot A = \underline{20}$

Radius of $\odot B = \underline{20}$

Congruent? Yes / No

$$\begin{aligned} 20 &= 8x - 4 \\ +4 & \quad +4 \\ \hline 24 &= 8x \\ \frac{24}{8} &= \frac{8x}{8} \end{aligned}$$

$$\begin{aligned} 6(3) + 2 \\ 18 + 2 \end{aligned}$$

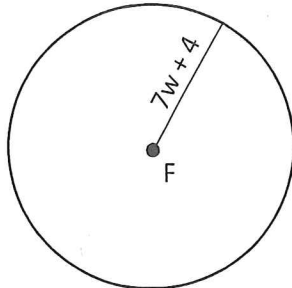
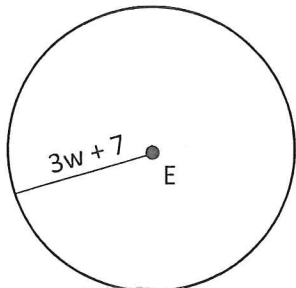
36. Diameter = $8w - 6$

$w = \underline{10}$

Radius of $\odot E = \underline{37}$

Radius of $\odot F = \underline{74}$

Congruent? Yes / No

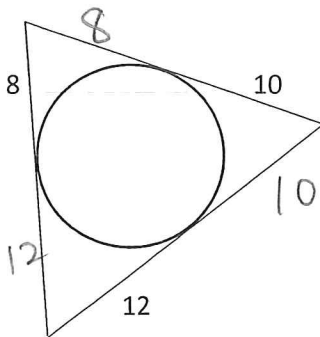


$$\begin{aligned} 3(10) + 7 \\ 7(10) + 4 \end{aligned}$$

$$\begin{aligned} 2(3w + 7) &= 8w - 6 \\ 6w + 14 &= 8w - 6 \\ 14 &= 2w - 6 \\ +10 & \quad +6 \end{aligned}$$

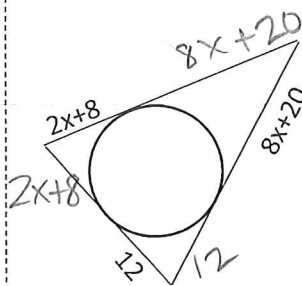
$$\frac{20}{2} = \frac{2w}{2}$$

37. Find the perimeter of the triangle that is circumscribed around the circles.



Perimeter = 60

38. The perimeter of the circumscribed triangle is 120; find the value of x.



$$\begin{aligned} 2x + 8 + 2x + 8 + 8x + 20 \\ + 8x + 20 + 12 + 12 = 120 \end{aligned}$$

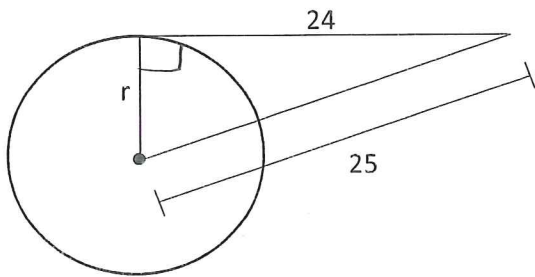
$$20x + 80 = 120$$

$$\frac{20x}{20} = \frac{40}{20}$$

$x = \underline{2}$

Find the radius of the following circles. Assume that segments that appear tangent ARE tangent.

39.



$$r^2 + 24^2 = 25^2$$

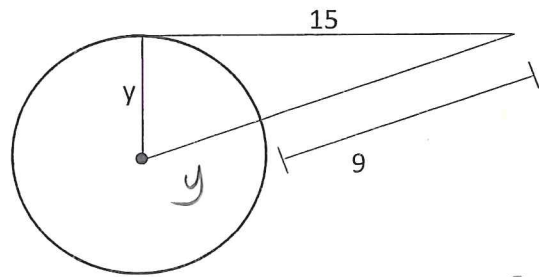
$$r^2 + 576 = 625$$

$$\quad -576 \quad -576$$

$$\sqrt{r^2} = \sqrt{49}$$

$$\boxed{r = 7}$$

40.



$$y^2 + 15^2 = (y + 9)^2$$

$$y^2 + 225 = \cancel{y^2} + 9x + 9x + 81$$

$$225 = 18y + 81$$

$$\quad -81 \quad -81$$

$$\frac{144}{18} = \frac{18y}{18}$$

$$8 = y$$

$$\boxed{r = 8}$$