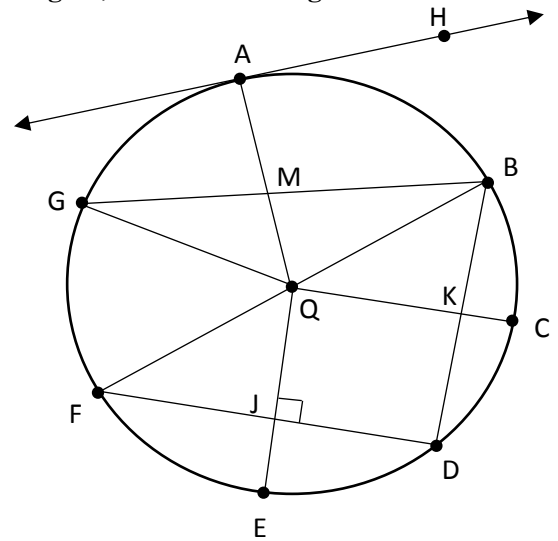


Use the figure of Circle Q at right to answer #1 - #13. If a line appears tangent, assume it is tangent.

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

1.  $\overline{FB}$  is diameter
2. A is a point of tangency
3.  $\angle EQC$  is a central angle
4.  $\angle FBD$  is an inscribed angle
5.  $\overline{QE}$  is a radius
6.  $\overline{HA}$  is a tangent line
7.  $\angle QAH$  is a right angle
8.  $\triangle FBD$  is inscribed in circle Q.
9.  $\widehat{BDG}$  is a major arc
10.  $\widehat{BG}$  is a minor arc
11. Name an isosceles triangle:  $\triangle GQB$
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:

$\overline{JK} \cong \overline{PN}$

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

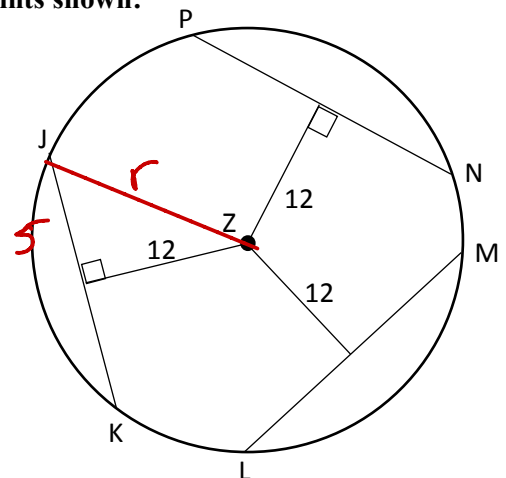
15. If  $JK = 10$ , find the diameter of circle Z.

$5^2 + 12^2 = r^2$

$169 = r^2$

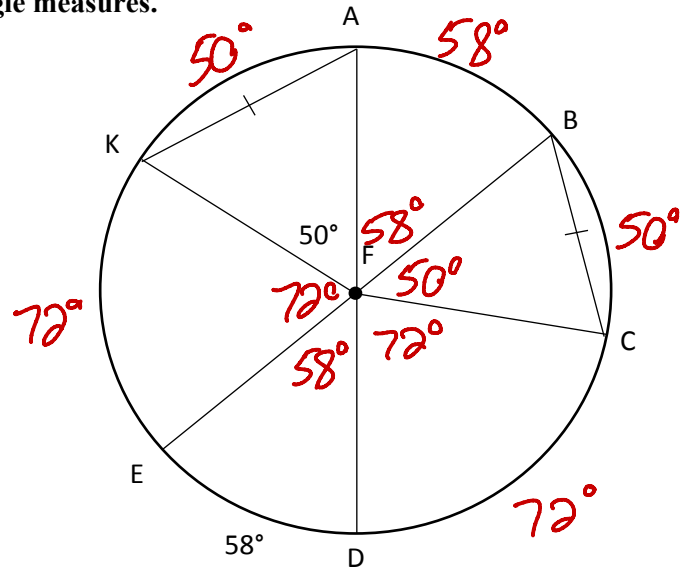
$13 = r$

$d = 2(13)$   
 $d = 26$



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

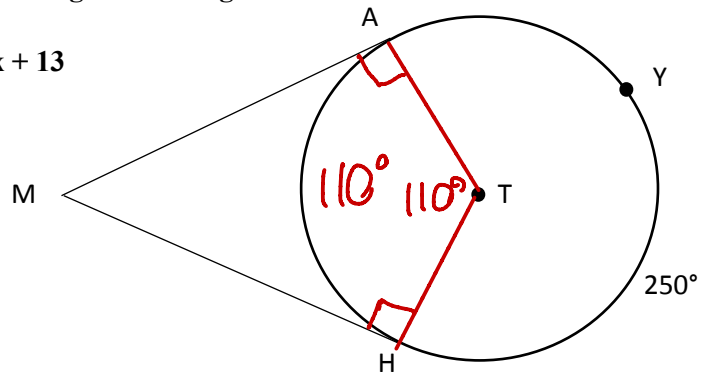
16.  $m\widehat{KA} = \underline{50^\circ}$       17.  $m\widehat{BA} = \underline{58^\circ}$   
 18.  $m\widehat{KE} = \underline{72^\circ}$       19.  $m\widehat{BC} = \underline{50^\circ}$   
 20.  $m\angle EFC = \underline{130^\circ}$       21.  $m\angle AFD = \underline{180^\circ}$   
 22.  $m\widehat{CKD} = \underline{288^\circ}$       23.  $m\widehat{ABK} = \underline{310^\circ}$   
 24.  $m\angle KFC = \underline{158^\circ}$       25.  $m\angle FBC = \underline{65^\circ}$   
 26.  $m\widehat{ECA} = \underline{238^\circ}$       27.  $m\widehat{KD} = \underline{130^\circ}$



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.  $m\widehat{AH} = \underline{110^\circ}$   
 29.  $m\angle ATH = \underline{110^\circ}$   
 30.  $m\angle MAT = \underline{90^\circ}$   
 31.  $m\angle MHT = \underline{90^\circ}$   
 32.  $m\angle M = \underline{70^\circ}$



33.  $x = \underline{4}$

34.  $MA = \underline{41}$

$12(4) - 7 = 41$

$360 - 110 - 90 - 90$

$12x - 7 = 7x + 13$

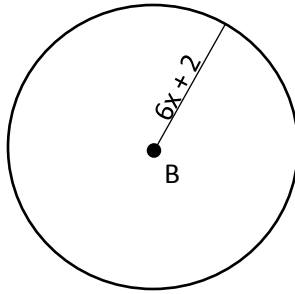
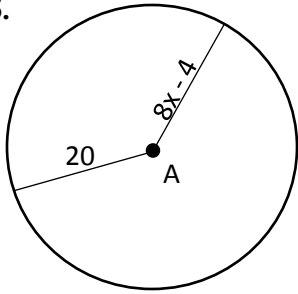
$5x - 7 = 13$

$5x = 20$

$x = 4$

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

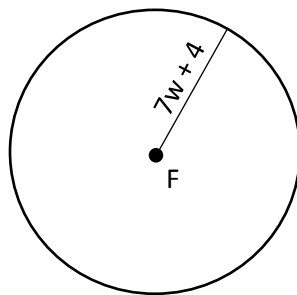
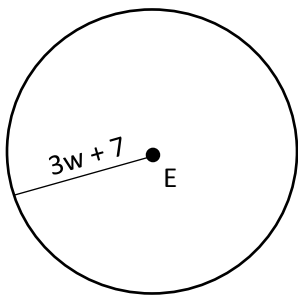
$$8x - 4 = 20$$

$$8x = 24$$

$$x = 3$$

$$r = 6(3) + 2 = 20$$

36. Diameter =  $8w - 6$



$w = \underline{10}$

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

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

Congruent? Yes  No

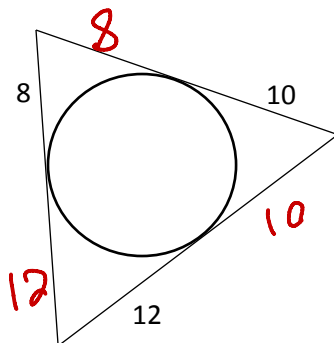
$$3w + 7 + 3w + 7 = 8w - 6$$

$$6w + 14 = 8w - 6$$

$$20 = 2w$$

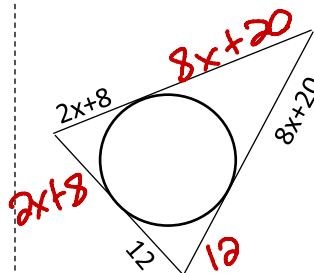
$$10 = w$$

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  $x$ .



$$2(2x+8) + 2(8x+20) + 2(12) = 120$$

$$4x + 16 + 16x + 40 + 24 = 120$$

$$20x + 80 = 120$$

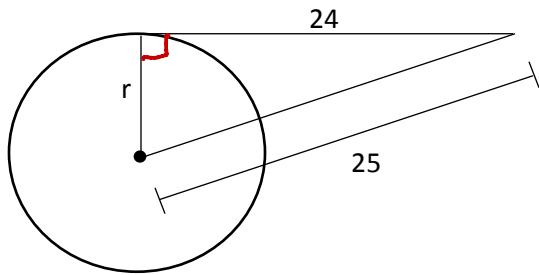
$$20x = 40$$

$$x = 2$$

$x = \underline{2}$

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

39.



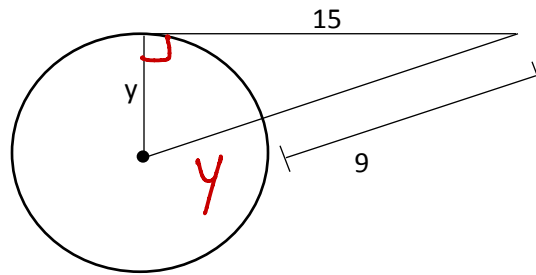
$$r^2 + 24^2 = 25^2$$

$$r^2 + 576 = 625$$

$$r^2 = 49$$

$$\boxed{r = 7}$$

40.



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

$$y^2 + 225 = (y + 9)(y + 9)$$

$$y^2 + 225 = y^2 + 9y + 9y + 81$$

$$y^2 + 225 = y^2 + 18y + 81$$

$$\begin{array}{r} -y^2 \qquad \qquad -y^2 \\ \hline \end{array}$$

$$225 = 18y + 81$$

$$144 = 18y$$

$$\boxed{8 = y}$$