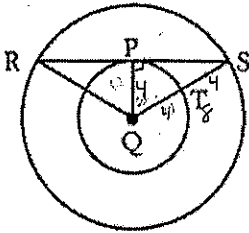


Ch9 Quiz Review 2 - Harder Problems

1.



In the figure above, $m\angle PQT = 60$ and $QT = 12$. Find the length of \overline{PT} .

12 (equil. Δ)

2.

In the figure above, \overline{RS} is a chord tangent to smaller concentric $\odot Q$ with radius \overline{PQ} . If $\overline{PQ} \perp \overline{RS}$, $PQ = 4$, and $QS = 8$, find RS .

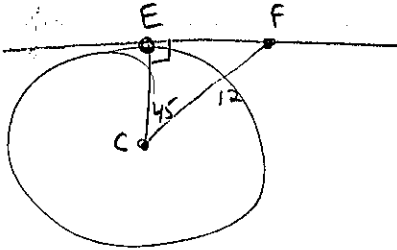
$$4^2 + PS^2 = 8^2$$

$$PS = \sqrt{48} = 4\sqrt{3}$$

$RS = 8\sqrt{3}$

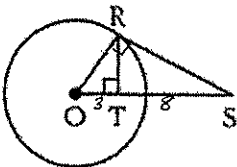
3.

If \overline{EF} is tangent to $\odot C$ at E , $m\angle FCE = 45$, and $CF = 12$, what is the radius of $\odot C$?



$$\frac{12}{\sqrt{2}} = 6\sqrt{2}$$

4.

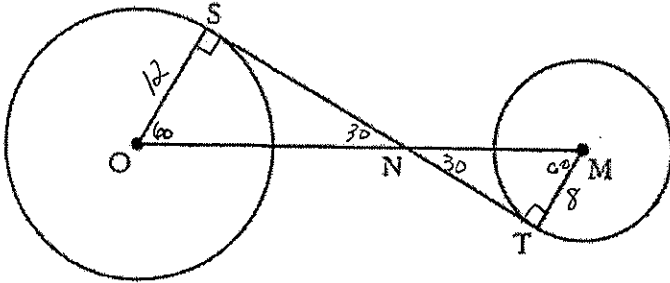


For $\odot O$ above, \overline{RS} is a tangent and $\overline{RT} \perp \overline{OS}$. If $OT = 3$ and $TS = 8$, find RT .

$$\frac{3}{RT} = \frac{RT}{8}$$

$$RT = \sqrt{24} = 2\sqrt{6}$$

5.

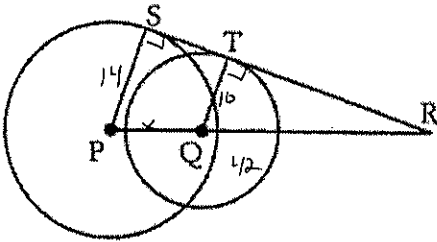


Test

In the figure above, \overline{ST} is a common internal tangent to $\odot O$ and $\odot M$. If the radius of $\odot O$ is 12, the radius of $\odot M$ is 8, and $m\angle NMT = 60$, find SN.

$$\boxed{12\sqrt{3}}$$

6.



$$\frac{10}{14} = \frac{42-x}{42}$$

$$420 = 588 - 14x$$

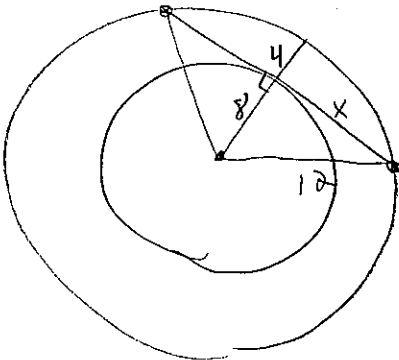
$$-168 = -14x$$

$$\boxed{12 = x}$$

In the figure above, \overline{SR} is a common tangent to $\odot P$ and $\odot Q$. If $SP = 14$, $QT = 10$, and $PR = 42$, find PQ .

7.

Two concentric circles have radii 8 mm and 12 mm. What is the length of a chord of the larger circle if it is tangent to the smaller circle?



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

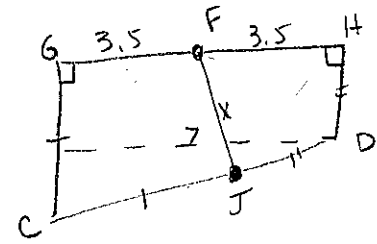
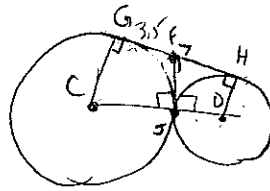
$$x = \sqrt{80}$$

$$x = 4\sqrt{5}$$

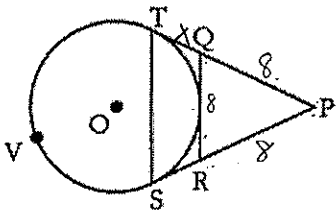
$$\boxed{8\sqrt{5}}$$

8

$\odot C$ and $\odot D$ are externally tangent at point J . F is the midpoint of \overline{GH} , a common external tangent of the circles. If $GH = 7$, find FJ .



9.



3.5??

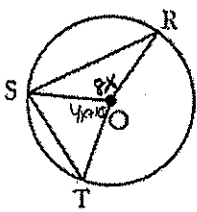
Not Sure!!

In the figure above, $\triangle PQR$ is equilateral, and \overline{QR} , \overline{PT} , and \overline{PS} are tangent to $\odot O$. If $PR = 8$, find QT .

$QR = 8$

$x = 4$

10.



In $\odot O$ above, $m\angle ROS = 8x$, $m\angle TOS = 4x + 15$, and $m\angle TOR = 11x$. Find $m\widehat{RST}$.

$$8x + 4x + 15 + 11x = 360$$

$$23x = 345$$

$$x = 15$$

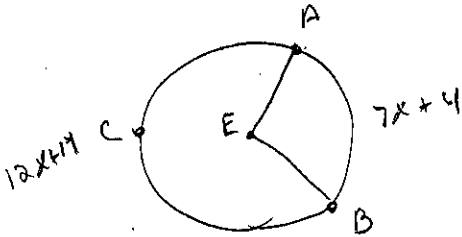
$$8x + 4x + 15 = m\widehat{RST}$$

$$12(15) + 15 = m\widehat{RST}$$

$$195 = m\widehat{RST}$$

11.

In $\odot E$, $m\widehat{AB} = 7x + 4$ and $m\widehat{ACB} = 12x + 14$. Find $m\angle AEB$.



$$12x + 14 + 7x + 4 = 360$$

$$19x = 342$$

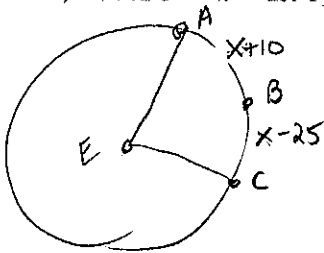
$$x = 18$$

$$7(18) + 4 = m\angle AEB$$

$$\boxed{130 = m\angle AEB}$$

12.

\widehat{AB} and \widehat{BC} are adjacent arcs on $\odot E$. \widehat{AB} has twice the measure of \widehat{BC} , $m\widehat{AB} = x + 10$, and $m\widehat{BC} = x - 25$. Find $m\angle AEC$.



$$x + 10 = 2(x - 25)$$

$$x + 10 = 2x - 50$$

$$-x = -60$$

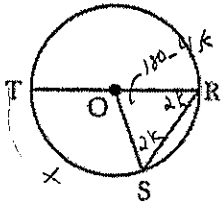
$$x = 60$$

$$2x - 15 = m\angle AEC$$

$$2(60) - 15$$

$$\boxed{105 = m\angle AEC}$$

13.

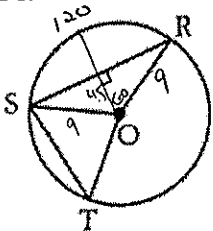


In $\odot O$ above, $m\angle R = 2k$. What is $m\widehat{ST}$?

$$m\widehat{TS} = 180 - (180 - 4k)$$

$$\boxed{m\widehat{TS} = 4k}$$

14.



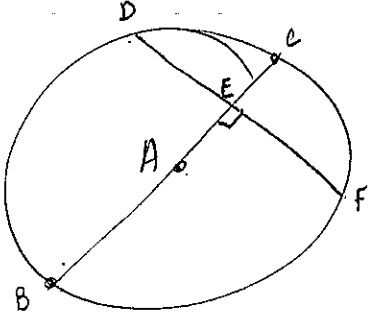
In $\odot O$ above, $m\widehat{RS} = 120$ and $OR = 9$. Find RS .

$$4.5\sqrt{3} \cdot 2 = \boxed{9\sqrt{3}}$$

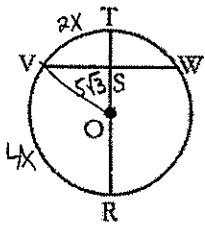
15.

In $\odot A$, diameter \overline{BC} is perpendicular to chord \overline{DF} at E. Which one of the following must be true?

- A. F is equidistant from B and C.
- B. $\triangle BDF$ is a right triangle.
- C. E is the midpoint of \overline{BC} .
- D. Every point on \overline{BC} is equidistant from D and F. (1 bis.)



16.



(Not to scale)

In $\odot O$ above, if $m\widehat{RV} = 4x$, $m\widehat{VT} = 2x$, and $OS = 5\sqrt{3}$, find VW.

$$2x + 4x = 180$$

$$x = 30 \rightarrow m\angle TOV = 60$$

