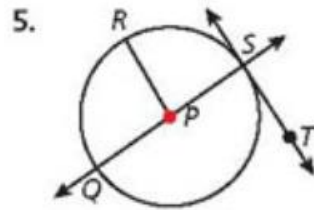
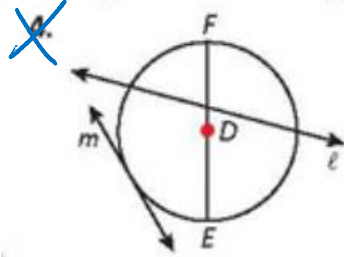
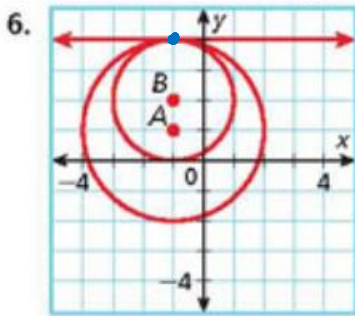


Identify each line or segment that intersects each circle.

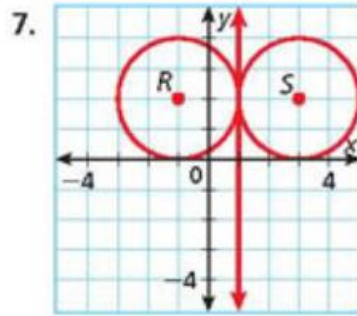


Secant:  $\overleftrightarrow{SQ}$   
Tangent:  $\overleftrightarrow{ST}$

**Multi-Step** Find the length of each radius. Identify the point of tangency and write the equation of the tangent line at this point.

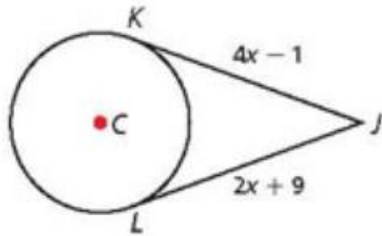


Radius:  
 $\odot B = 2$   
 $\odot A = 3$   
 $(-1, 4)$   
 $y = 4$



Radius:  
 $\odot R = 2$   
 $\odot S = 2$   
 $(1, 2)$   
 $x = 1$

9. JK



$$\begin{array}{r} 4x - 1 = 2x + 9 \\ -2x \quad -2x \\ \hline 2x - 1 = 9 \\ +1 \quad +1 \\ \hline 2x = 10 \\ \frac{2x}{2} = \frac{10}{2} \end{array}$$

$x = 5$   
 $JK = 4(5) - 1$   
 $= 20 - 1$   
 $\boxed{19}$

**Graphic Design** Use the following diagram for Exercises 23–25.

The peace symbol was designed in 1958 by Gerald Holtom, a professional artist and designer. Identify the following.

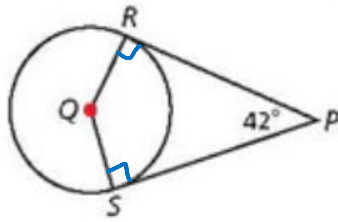
- 23. diameter  $\overline{AC}$
- 24. radii  $\overline{AP}$ ,  $\overline{PB}$ ,  $\overline{PC}$ ,  $\overline{PD}$
- 25. chord  $\overline{AC}$



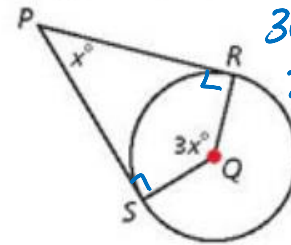
In each diagram,  $\overline{PR}$  and  $\overline{PS}$  are tangent to  $\odot Q$ . Find each angle measure.

26.  $m\angle Q$

$$360 - 90 - 42 - 90 = \boxed{138^\circ}$$



27.  $m\angle P$



$$360 = x + 90 + 3x + 90$$

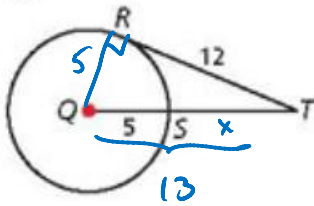
$$360 = 4x + 180$$

$$\frac{180}{4} = \frac{4x}{4}$$

$$\boxed{x = 45}$$

Find each length.

31.  $ST$



$$x = 13 - 5$$

$$\boxed{8}$$