Module 15 So Far

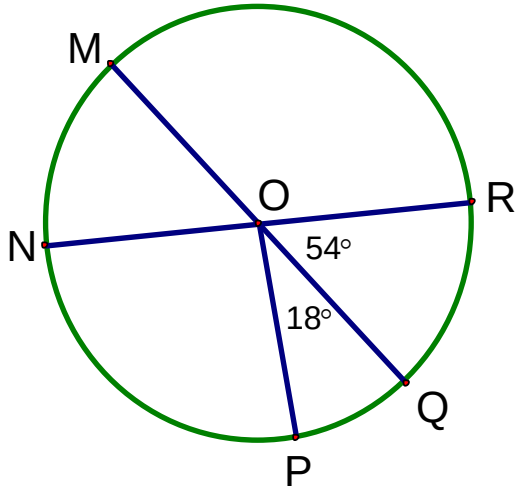
1. Solve for the following in circle O.

$m\widehat{NP} =$

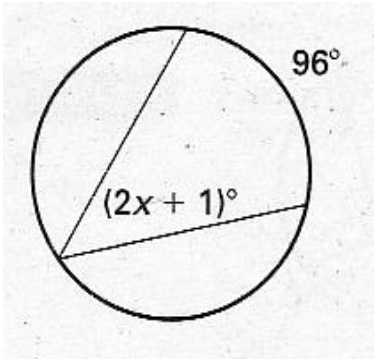
$m\widehat{MPR} =$

$m\widehat{QN} =$

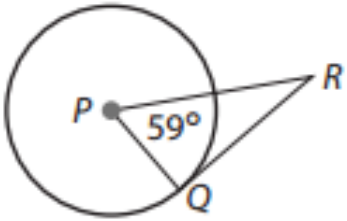
$m\widehat{NPR} =$



2. Solve for x.



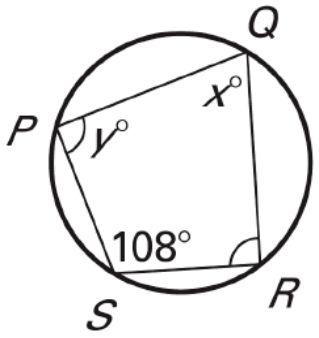
3. $\overline{QR}$ is tangent at point Q.



$m\angle Q =$

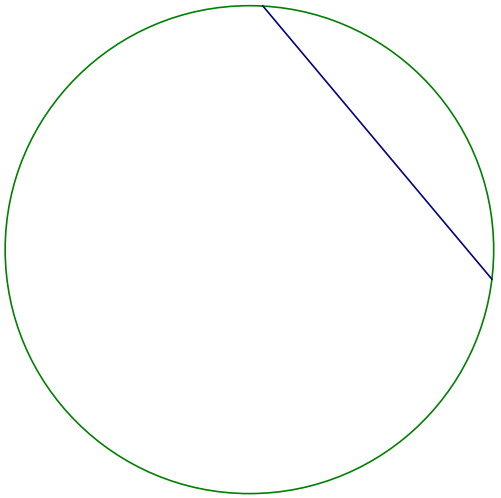
$m\angle R =$

4.



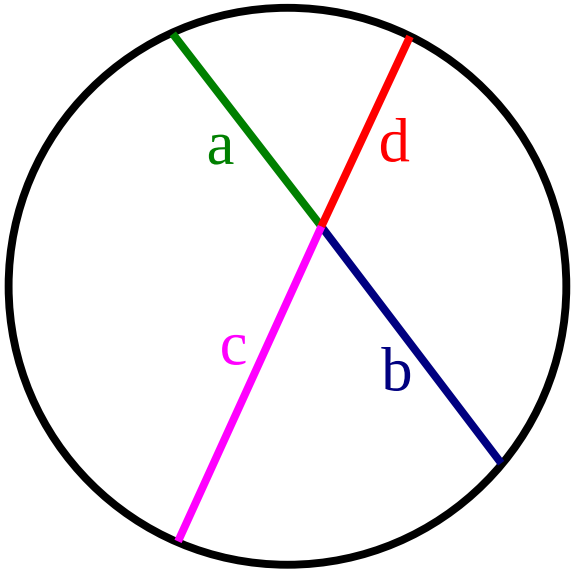
x = _____ y = _____

15.4 Segment Relationships in Circles



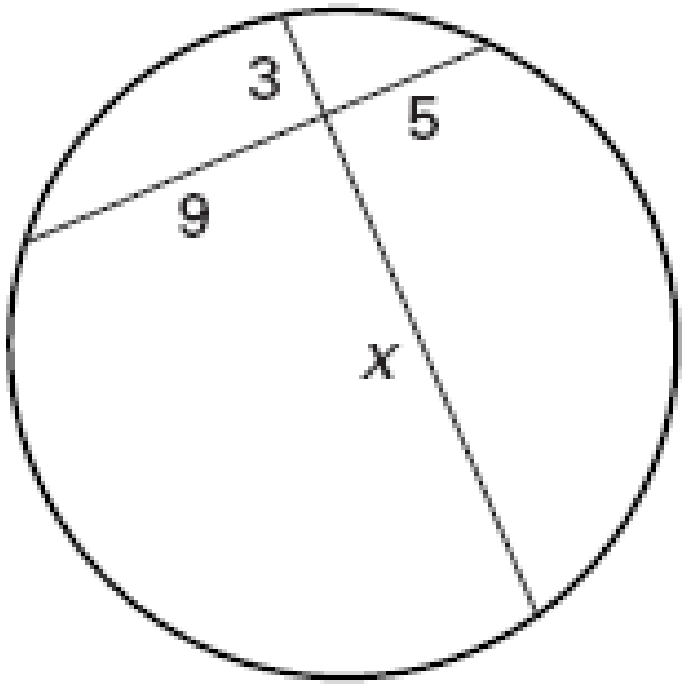
Remember: A chord is a segment that connects two points on a circle.

- When chords intersect inside a circle:



$$a \cdot b = c \cdot d$$

Ex. Find x.

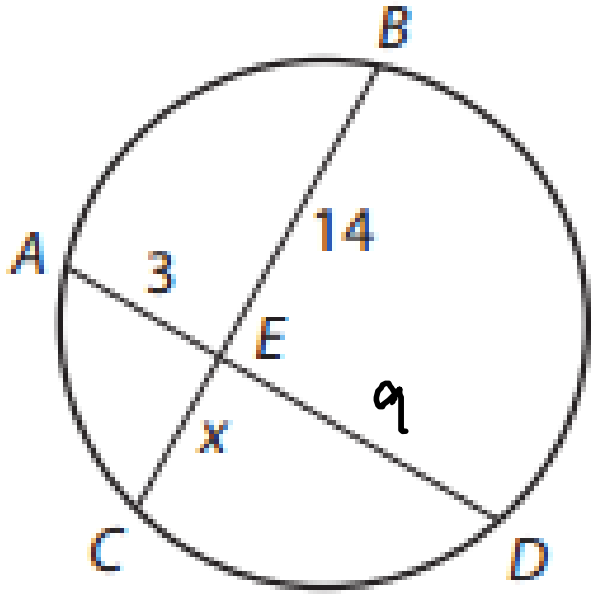


$3x = 9 \cdot 5$

$3x = 45$

$x = 15$

Ex. If $AD = 12$, find x.

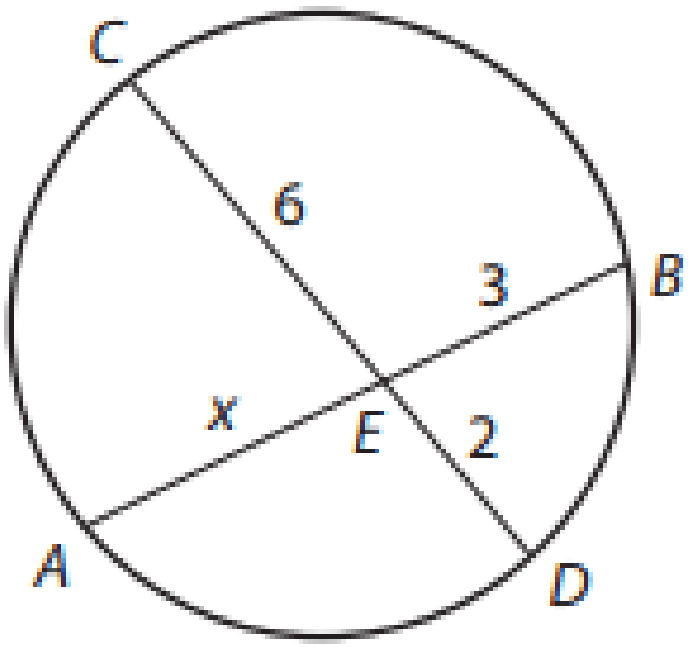


$9 \cdot 3 = 14x$

$27 = 14x$

$\frac{27}{14} = x$

Pract. Find x.

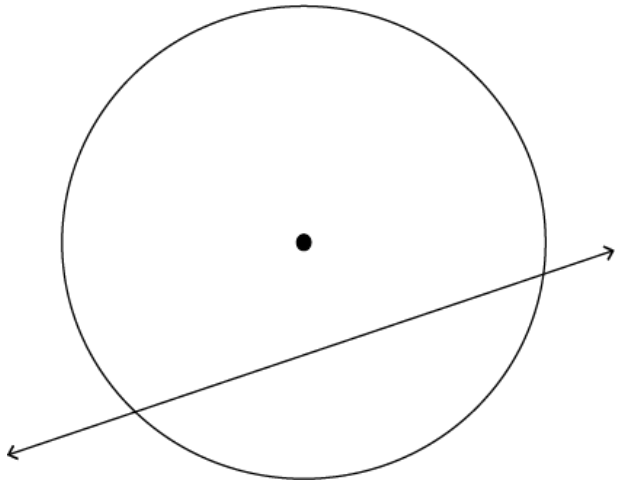


$6 \cdot 2 = 3x$

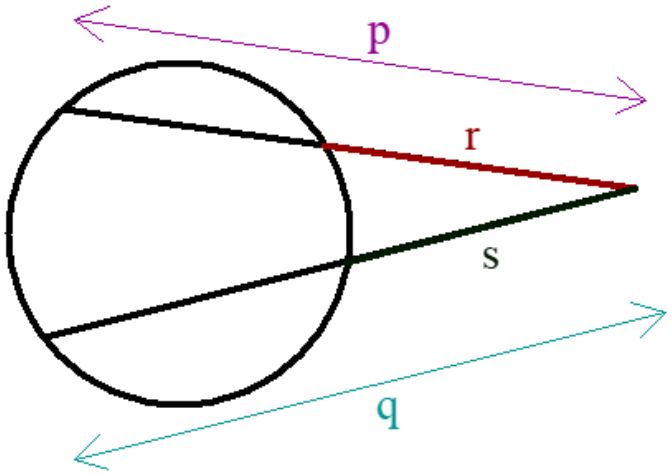
$12 = 3x$

$4 = x$

A <u>secant</u> is a line that intersects a circle at two points.

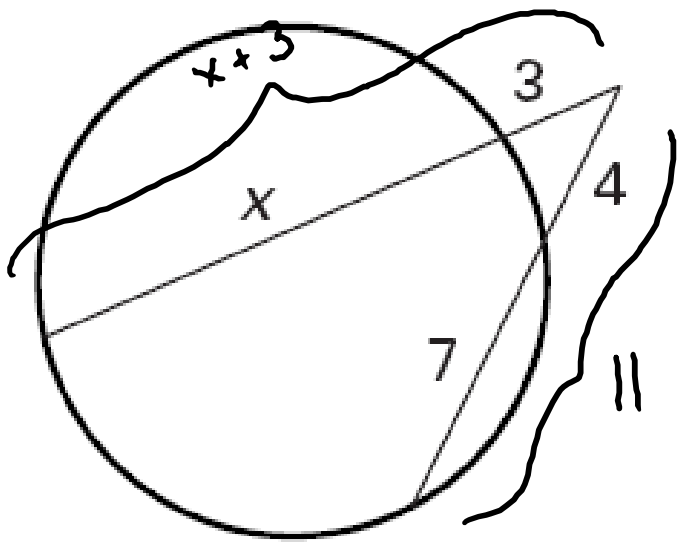


- When secants intersect outside a circle:



$$p \cdot r = q \cdot s$$

Ex. Find x.



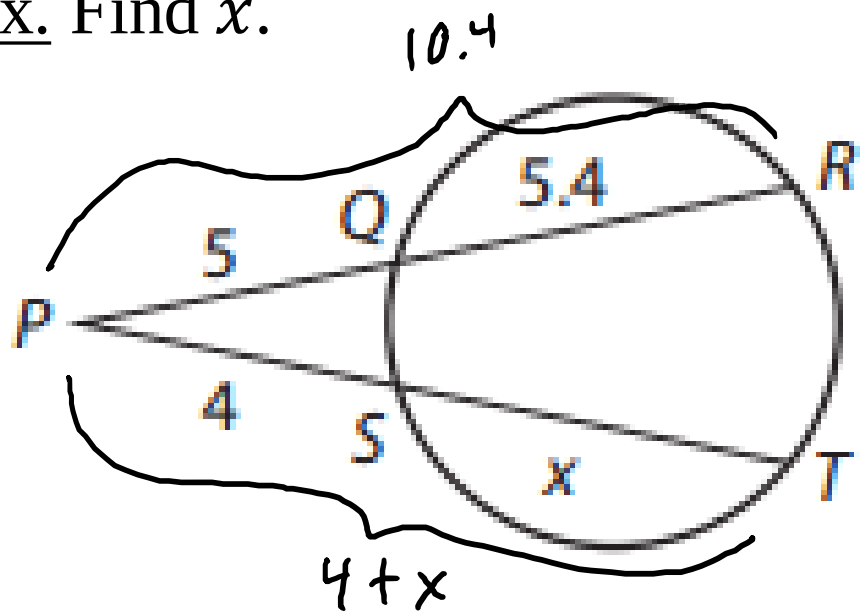
$11 \cdot 4 = (x+3) \cdot 3$

$44 = 3x + 9$

$35 = 3x$

$\frac{35}{3} = x$

Ex. Find x.



$(10.4)(5) = (4+x)4$

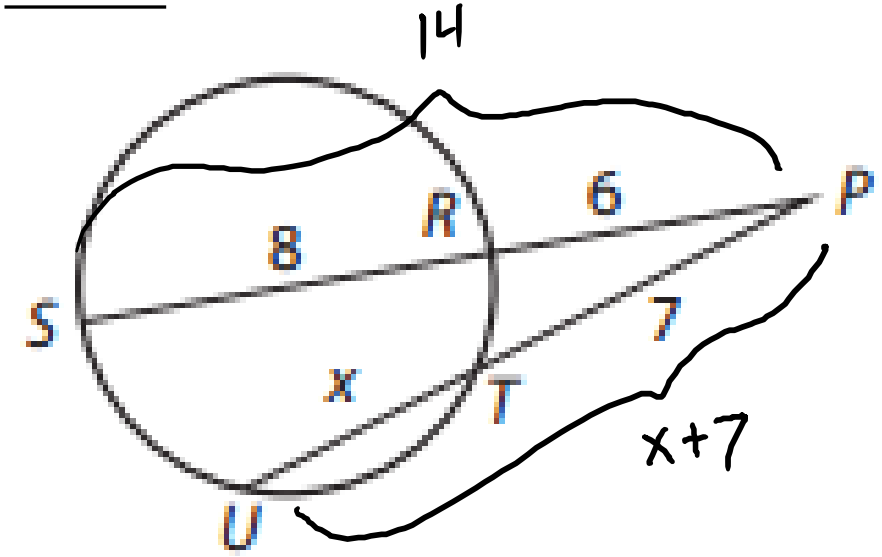
$52 = 16+4x$

$-16 \quad -16$

$\frac{36}{4} = \frac{4x}{4}$

$x = 9$

Pract. Find x.



$14 \cdot 6 = (x+7)7$

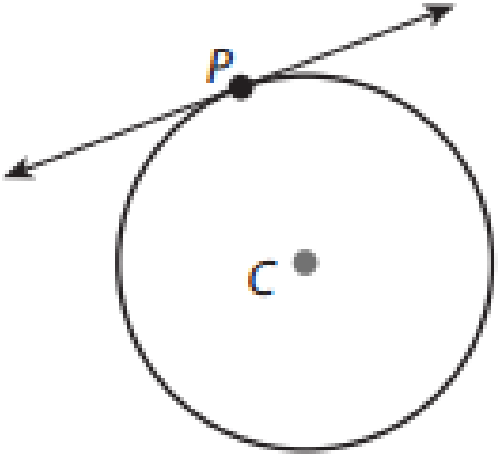
$84 = 7x + 49$

$-49 \quad -49$

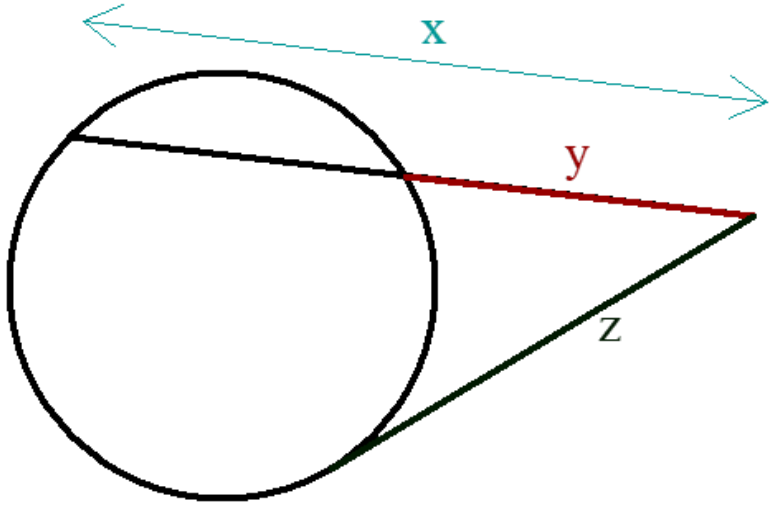
$35 = 7x$

$x = 5$

Remember: A tangent is a line that intersects the circle at exactly one point.

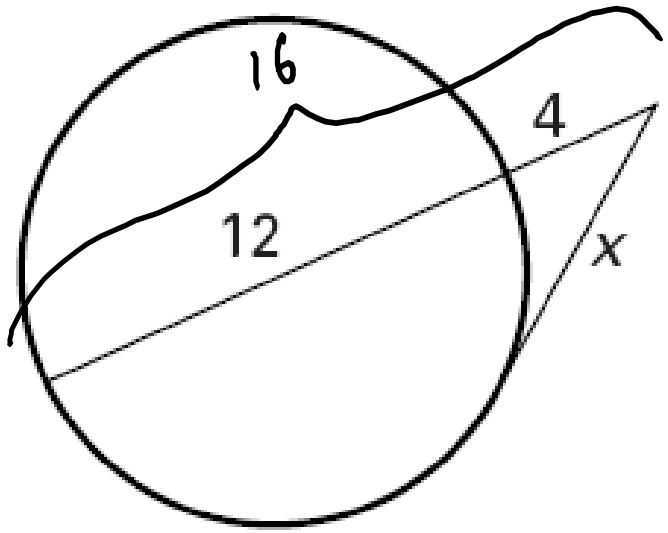


- When a secant and a tangent intersect outside a circle:



$$x \cdot y = z^2$$

Ex. Find x.

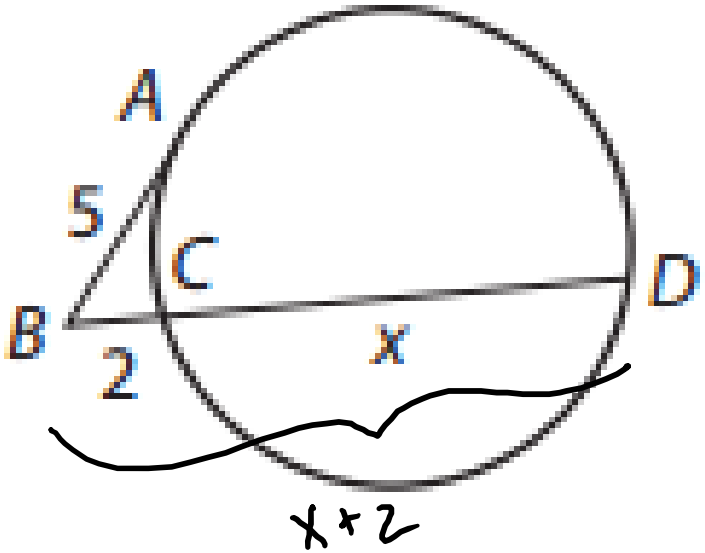


$16 \cdot 4 = x^2$

$\sqrt{64} = \sqrt{x^2}$

$8 = x$

Pract. Find x.



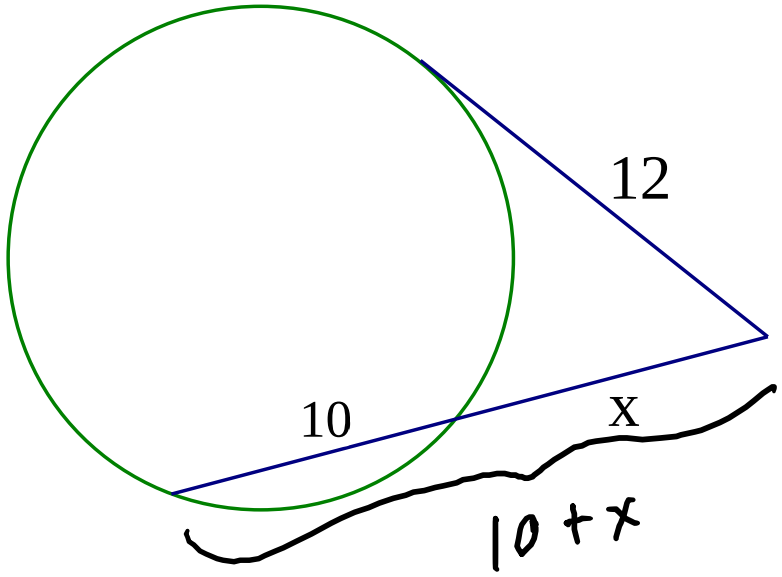
$(\overset{\frown}{x+2})2 = 5^2$

$2x+4 = 25$

$2x = 21$

$x = \frac{21}{2}$

Ex. Find x.



$(10+x)x = 12^2$

$10x + x^2 = 144$

$-144 \quad -144$

$x^2 + 10x - 144 = 0$

add mult.

$(x+18)(x+-8) = 0$

$x+18=0$ $\quad x-8=0$

$-18 \quad +8$

$x = -18$ $\quad \boxed{x=8}$

$2 \cdot 72$

$4 \cdot 36$

$6 \cdot 24$

$8 \cdot 18$

$9 \cdot 16$

$12 \cdot 12$