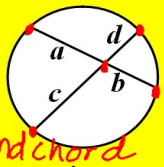
9-7 Circles and Segments

Feb 24

std. 21.0

- **2 chords intersect in circle**



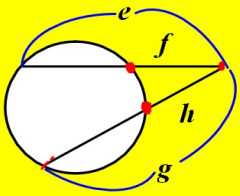
$a \cdot b = c \cdot d$

product of segs. of 1st chord = prod. of segs. of 2nd chord

- **2 secants drawn to circle from exterior point**

$e \cdot f = g \cdot h$

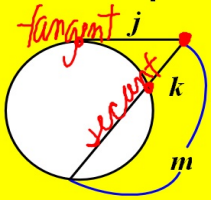
(secant)(ext. seg) = (secant)(ext. seg.)



- **secant and tangent drawn to circle from exterior point**

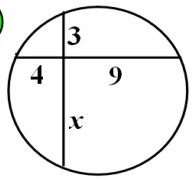
$j^2 = m \cdot K$

$(\text{tangent})^2 = (\text{secant})(\text{ext. seg.})$



Examples *Find x.*

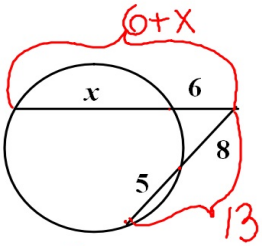
1



$4 \cdot 9 = 3 \cdot x$

$12 = x$

2



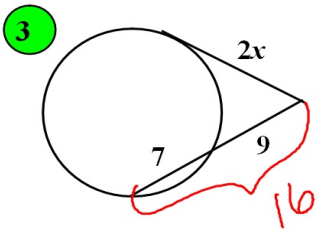
$(6+x)6 = 13(8)$

$36 + 6x = 104$

$x = \frac{68}{6} = 11\frac{1}{3}$

$\frac{34}{3}$

3



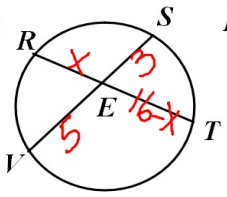
$(2x)^2 = 16 \cdot 9$

$4x^2 = 144$

$x^2 = 36$

$x = 6$

4



$RT = 16,\ SE = 3,\ EV = 5$

Find *RE*.

$$x(16-x) = 5 \cdot 3$$

$$16x - x^2 = 15$$

$$0 = x^2 - 16x + 15$$

$$0 = (x-1)(x-15)$$

$$x = 1, 15$$