

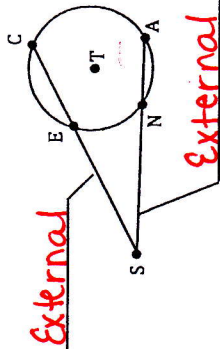
NOTES 10.6b - SPECIAL SEGMENTS IN A CIRCLE

SECANT SEGMENTS:

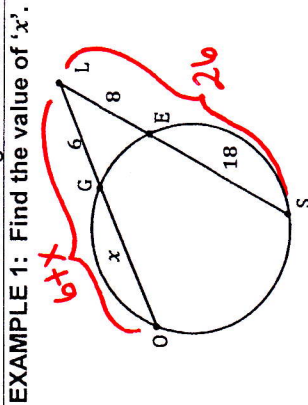
$\overline{SC} \cdot \overline{SA}$

EXTERNAL SECANT SEGMENTS:

$\overline{SE} \cdot \overline{SN}$



THEOREM: If two secant segments are drawn to a circle from an exterior point, then the product of the measures of one secant segment and its external secant segment is equal to the product of the measures of the other secant segment and its external secant segment.

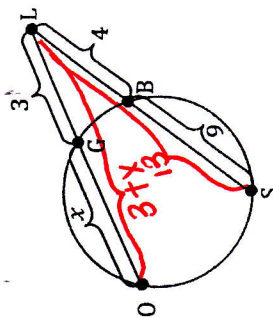


EXAMPLE 1: Find the value of 'x'.

External whole external whole
 $6(6+x) = 8(26)$
 $36 + 6x = 208$
 $6x = 172$

$x = \frac{86}{3}$

EXAMPLE 2: Find the value of 'x'.



External whole external whole
 $3(3+x) = 4(13)$
 $9 + 3x = 52$
 $3x = 43$

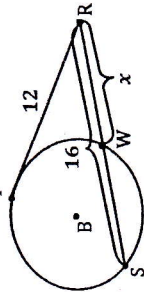
$x = \frac{43}{3}$

THEOREM: If a tangent segment and a secant segment are drawn to a circle from an exterior point, then the square of the measure of the tangent segment is equal to the product of the measures of the secant segment and its external secant segment.

EXAMPLE 3: Find the value of 'x'.

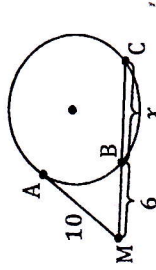
(Tangent)² = Whole · External

$(12)^2 = 16x$
 $144 = 16x$
 $x = 9$



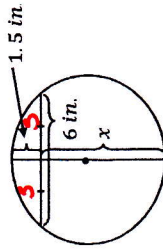
EXAMPLE 4: Find the value of 'x'.

$10^2 = 6(6+x)$
 $100 = 36 + 6x$
 $64 = 6x$
 $x = \frac{32}{3}$



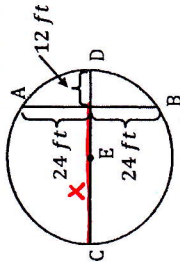
THEOREM: If two chords intersect in a circle, then the products of the measures of the segments of the chords are equal.

EXAMPLE 5: Find the value of 'x'.



$3(3) = 1.5x$
 $9 = 1.5x$
 $x = 6$

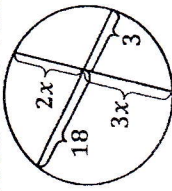
EXAMPLE 6: Find the measure of the radius of this circle.



$12x = 24(24)$
 $12x = 576$
 $x = 48$
 $d = 48 + 12 = 60$

$r = 30 \text{ ft.}$

EXAMPLE 7: Find the value of 'x'.



$2x(3x) = 18(3)$
 $6x^2 = 54$
 $x^2 = 9$
 $x = 3$