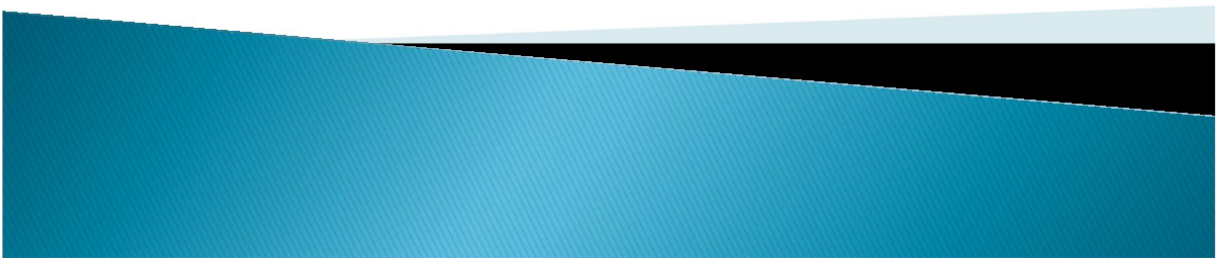


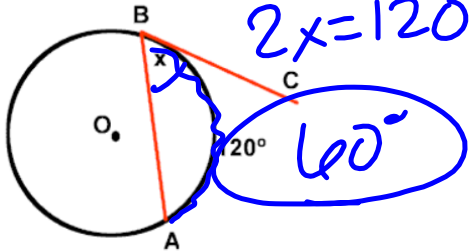
10.8: The Power Theorems



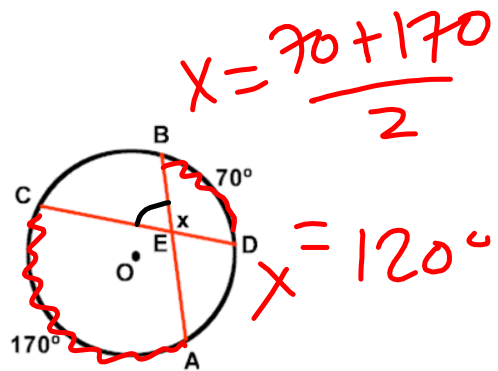
Starter

► Solve for x

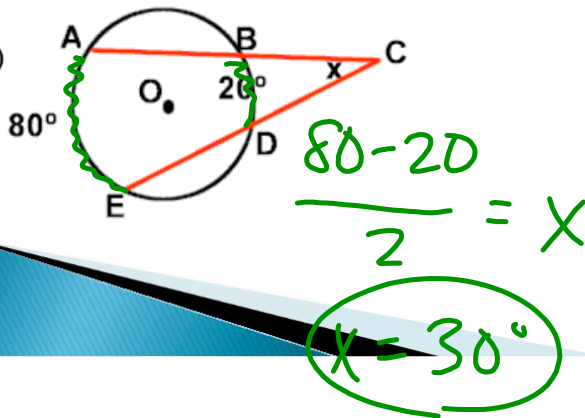
1)



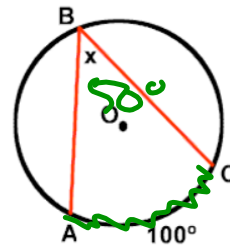
2)



3)

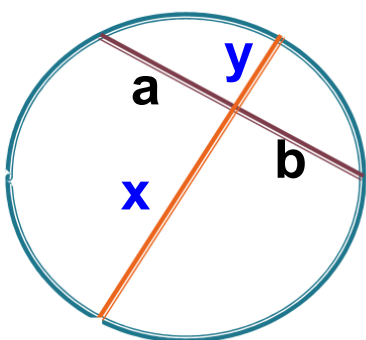


4)



Chord–Chord Power Theorem

- ▶ Multiply both parts of the chord together. Then set them equal.

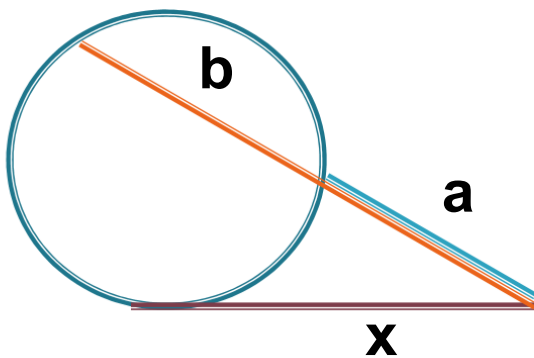


$$ab = xy$$



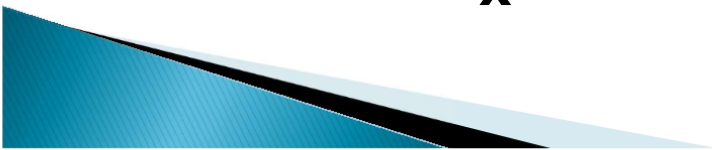
Secant-Tangent Power Theorem

- ▶ Multiply the secant by its external piece and set it equal to the square of the tangent.



$$x^2 = a(a+b)$$

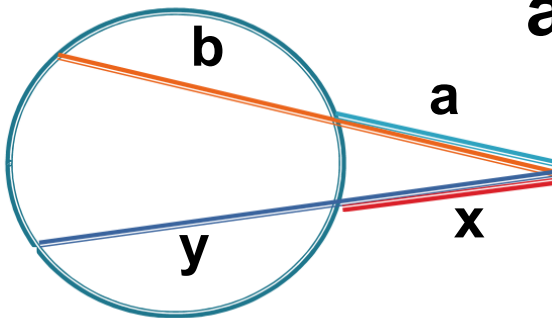
total length



Secant-Secant Power Theorem

- ▶ Multiply one secant by its external part and set equal to the outside of the other secant multiplies by itself.

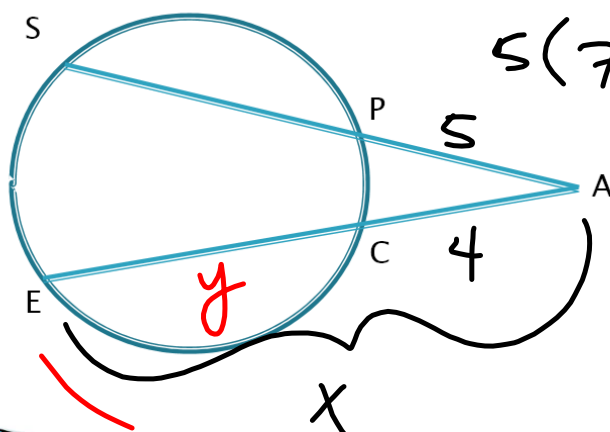
$$a(a + b) = x(x + y)$$



Example 1

Given: $PA = 5$, $SP = 7$, $AC = 4$

Find: AE



$$5(7+5) = 4(x)$$

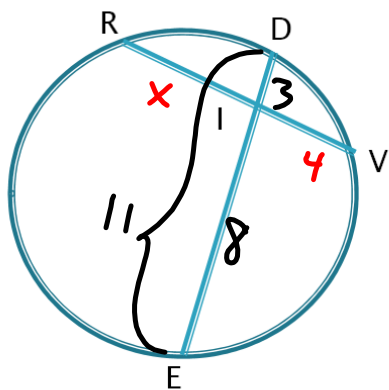
$$60 = 4x$$

$$x = 15$$

Example 2

Given: $DE = 11$, $ID = 3$, $VI = 4$

Find: IR



$$4 \cdot x = 3 \cdot 8$$

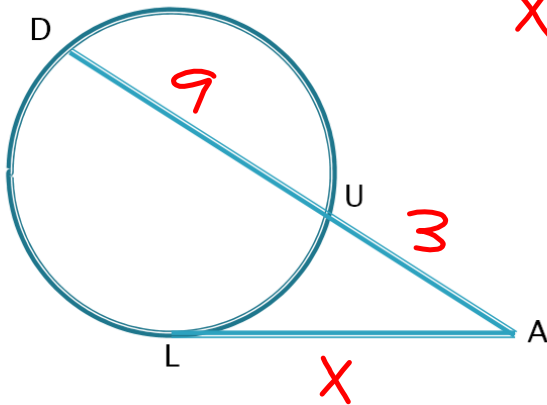
$$4x = 24$$

$$x = 6$$

Example 3

Given: $UA = 3$, $DU = 9$

Find: AL



$$X^2 = 3(9+3)$$

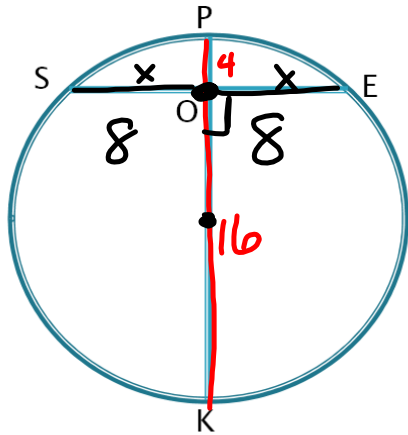
$$\sqrt{X^2} = \sqrt{36}$$

$$X = 6$$

Example 4

Given: $PO = 4$, $OK = 16$, O is the mdpt. of \overline{SE}

Find: SO

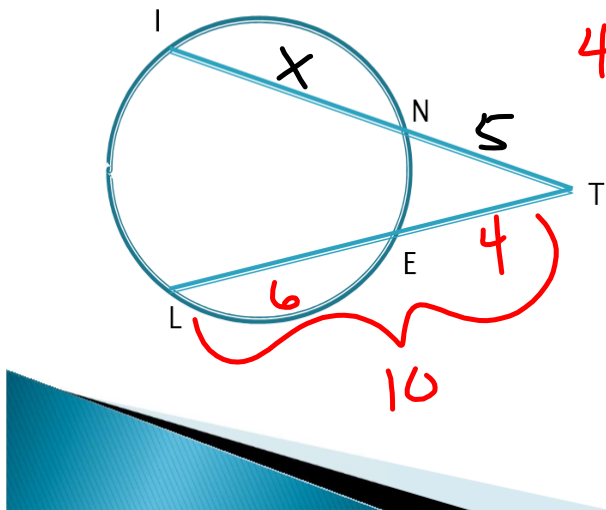


$$4 \cdot 16 = x^2$$
$$\sqrt{64} = \sqrt{x^2}$$
$$8 = x$$

Example 5

Given: $TE = 4$, $TL = 10$, $TN = 5$

Find: IN



$$a(a+b) = x(x+y)$$

$$4(10) = 5(5+x)$$

$$40 = 25 + 5x$$

$$15 = 5x$$

$$\frac{15}{5} = \frac{5x}{5}$$

$$3 = x$$

Homework

p. 495 ~~1, 2, 3, 4, 5, 9, 11, 14~~

1, 2, 3, 4, 5, 9, 11, 14

