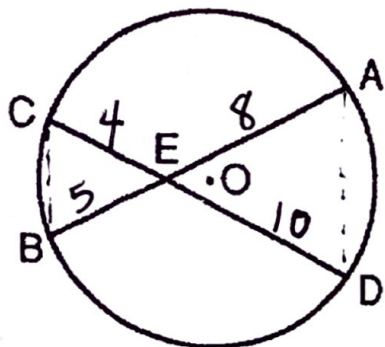


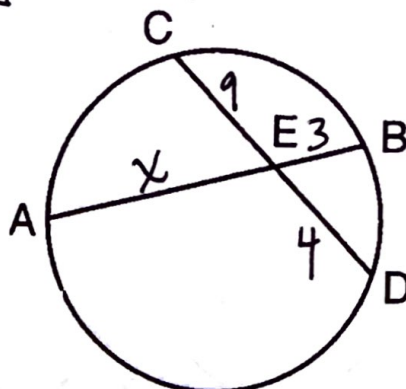
~ SEGMENT LENGTHS IN CIRCLES!

Intersecting chords and chord length!

I. 2 CHORDS



$$4 \cdot 10 = 5 \cdot 8$$



$$3 \cdot x = 9 \cdot 4$$

$$3x = 36$$

$$x = 12$$

When two chords intersect...

1. What is the relationship between the angles and arcs that are formed?

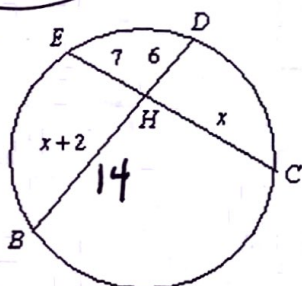
$$\text{angle} = \frac{1}{2} (\text{sum of intercepted arcs})$$

2. What is the relationship between the segments that are formed?

$$\begin{matrix} \text{part} \cdot \text{part} & = & \text{part} \cdot \text{part} \\ \text{(of one chord)} & & \text{(of other chord)} \end{matrix}$$

Ex:

Find DB



$$7 \cdot x = 6(x+2)$$

$$7x = 6x + 12$$

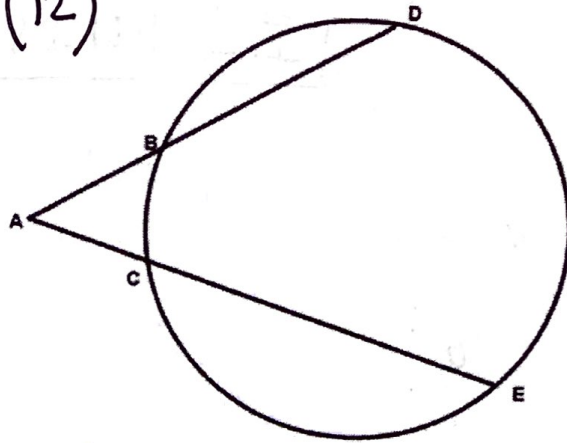
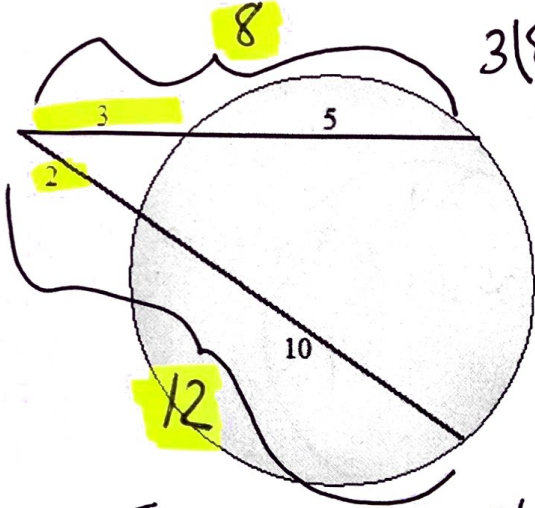
$$x = 12$$

$$DB = 20$$

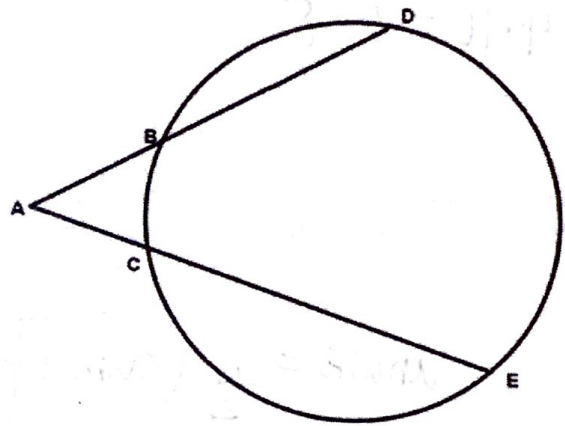
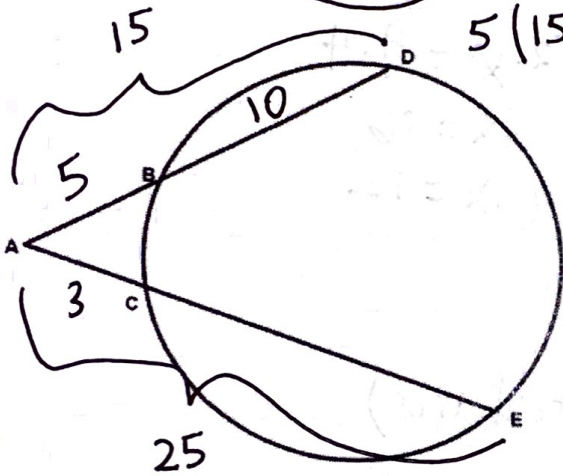
Investigation the relationships between segments of secants.

II. 2 SECANTS

$$3(8) = 2(12)$$



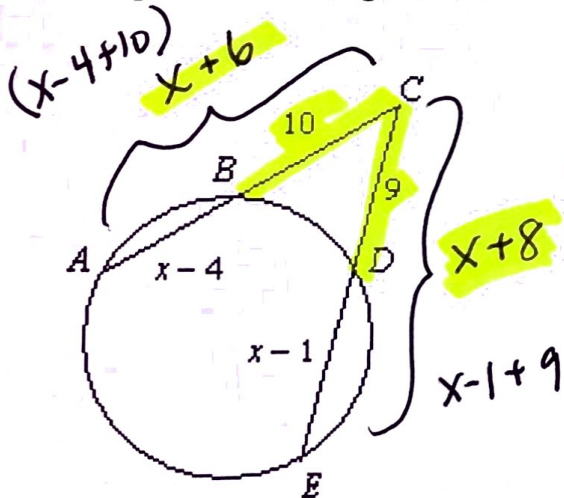
$$5(15) = 3(25)$$



Describe the relationship between the segments of secants that meet outside a circle.

$$\frac{\text{outside secant segment}}{\text{whole secant}} = \frac{\text{outside secant segment}}{\text{whole secant}}$$

Example: Find the length of AB.



$$10(x+6) = 9(x+8)$$

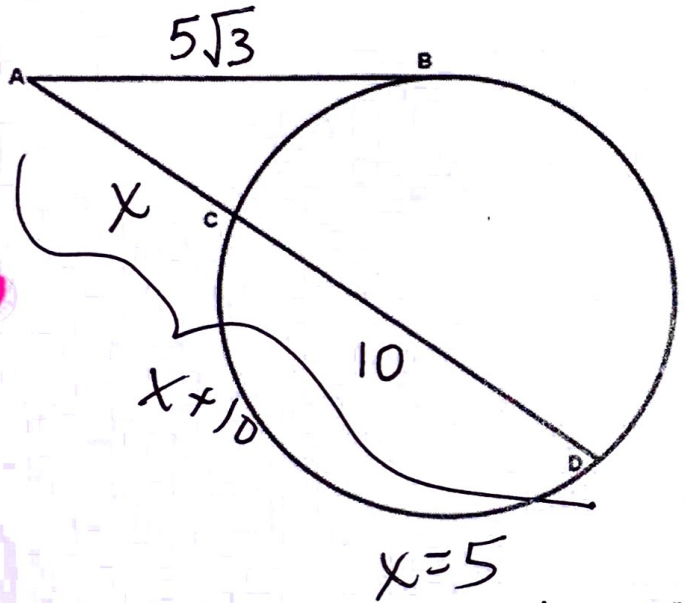
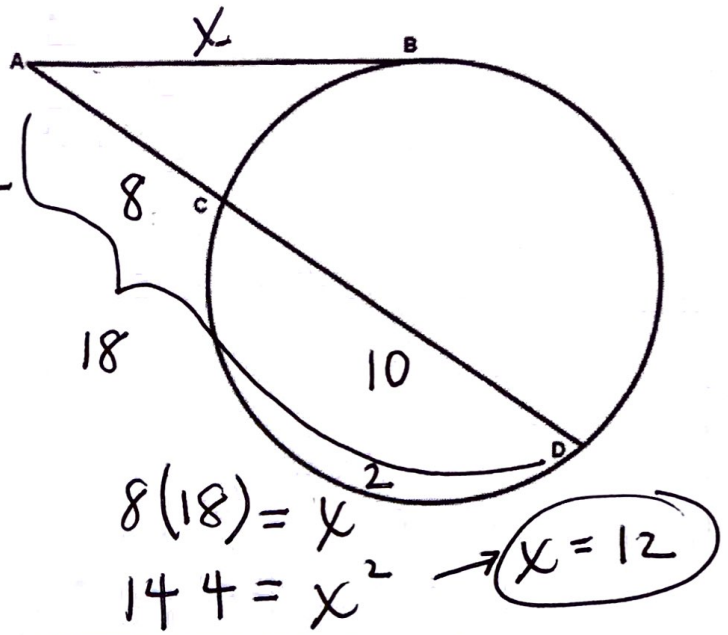
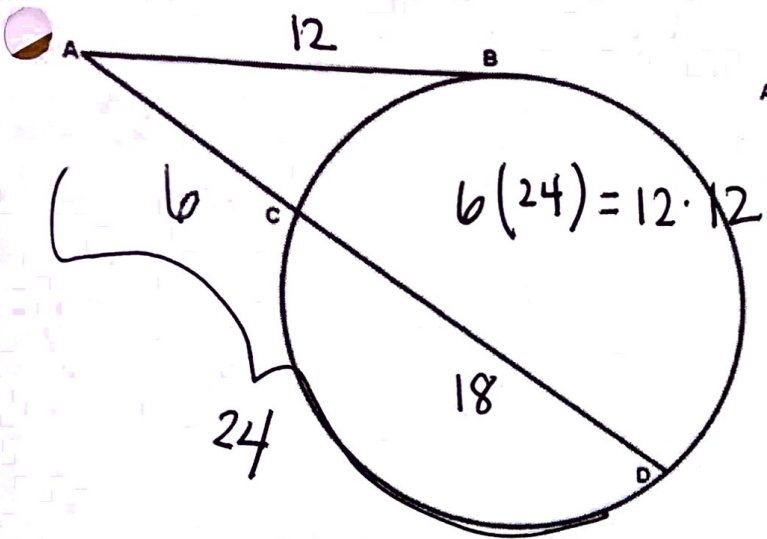
$$10x+60 = 9x+72$$

$$x = 12$$

$$AB = 12 - 4 = \underline{8}$$

Investigating between segments formed by tangents and secants.

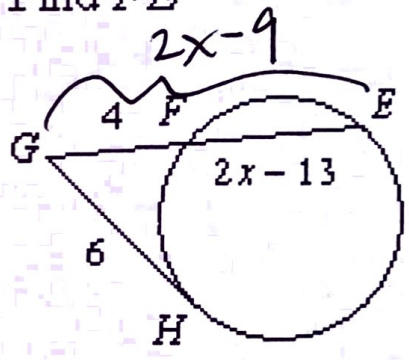
1 SECANT | 1 TANGENT



1. What relationship do you see between the segments formed by intersecting tangents and secants?
 $AB^2 = AC \cdot AD$
 $\text{tangent}^2 = \text{outside secant segment} \cdot \text{whole secant}$

Example:

Find FE



$$4(2x-9) = 6^2$$

$$8x-36 = 36$$

$$8x = 72$$

$$x = 9$$

$$FE = 2(9) - 13 = 5$$