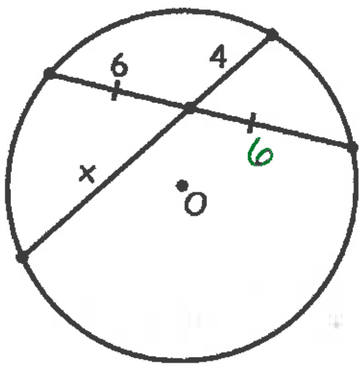
Geometry – Mr. Bo
Unit 12 – Day 4 Notes

Name:______________________
Date:______________

Chords, Tangents & Secants – Segment Lengths

Theorem: If 2 chords intersect **inside** a circle, then the **products of their parts** are =.

Example:



$4(x) = 6(6)$

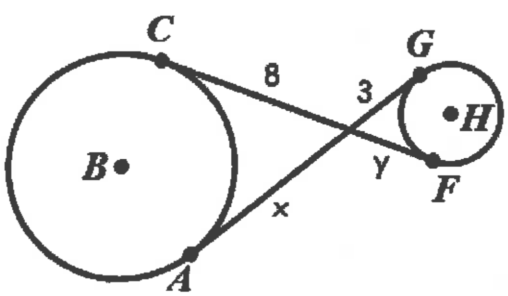
$4x = 36$

$x = 9$

Theorem: If 2 tangents intersect **outside** a circle, then they are **congruent**.

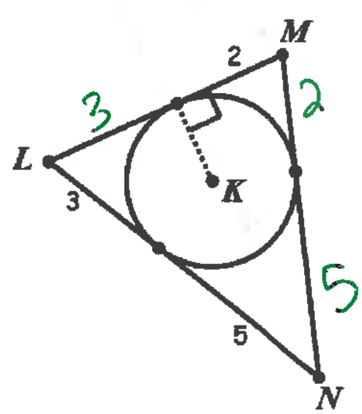
This is often called the Ice Cream Cone Theorem.

Examples:



$x = 8$

$y = 3$



Perimeter $= 10 + 4 + 6$

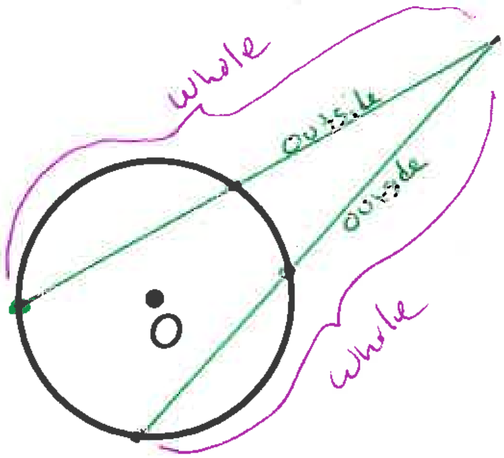
$= 20$

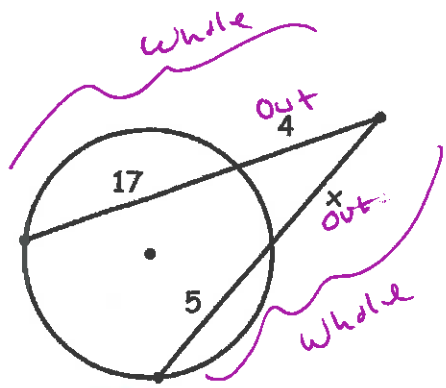
Theorem: If two secants or one secant and one tangent intersect **outside** a circle then:

(Whole Segment)(Outside part) = (Whole Segment)(Outside part)

Secant-Secant:

Examples:





$21(4) = (5+x)x$

$84 = 5x + x^2$

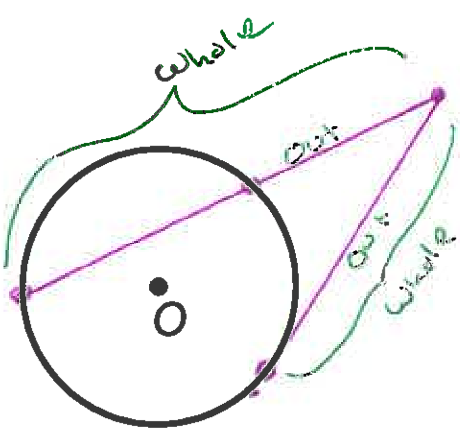
$x^2 + 5x - 84 = 0$

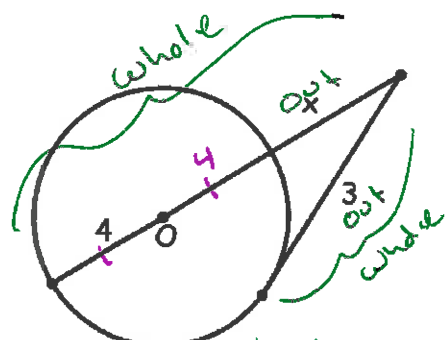
$(x+12)(x-7) = 0$

$x = -12$ reject, $x = 7$

Secant-Tangent:

Examples:





$(8+x)x = 3(3)$

$8x + x^2 = 9$

$x^2 + 8x - 9 = 0$

$(x+9)(x-1)$

$x = -9$ reject, $x = 1$