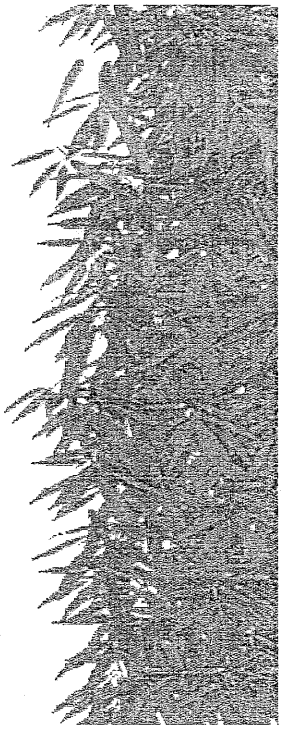
1)

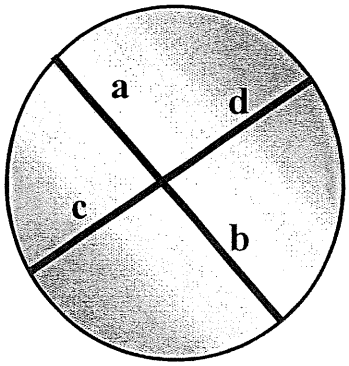
Analytic Geometry
Chapter 6.6

Secant and Tangent Segment Measures



2)

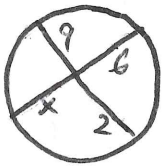
Type 1: Two chords intersect INSIDE the circle

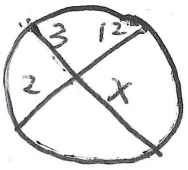


$ab = cd$

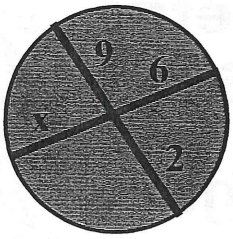
part • part = part • part

3)





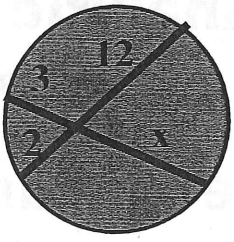
Example 1:



$6(x) = 9(2)$

$\frac{6x}{6} = \frac{18}{6}$

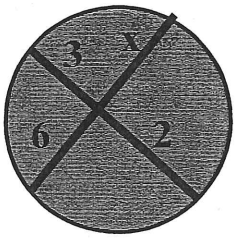
$\boxed{x = 3}$



$3(x) = (12)(2)$

$\frac{3x}{3} = \frac{24}{3}$

$\boxed{x = 8}$



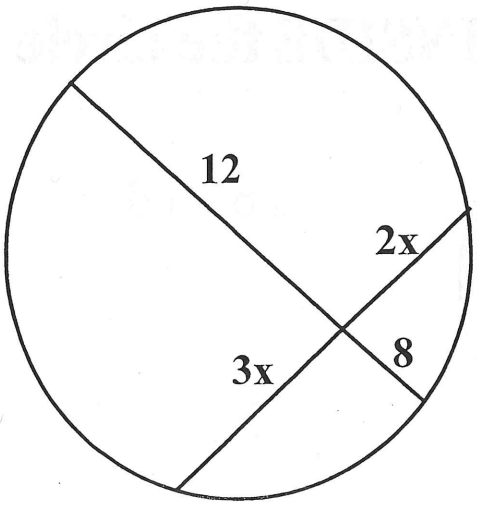
$6(x) = 3(2)$

$6x = 6$

$\boxed{x = 1}$

4)

Example 2: Find x



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

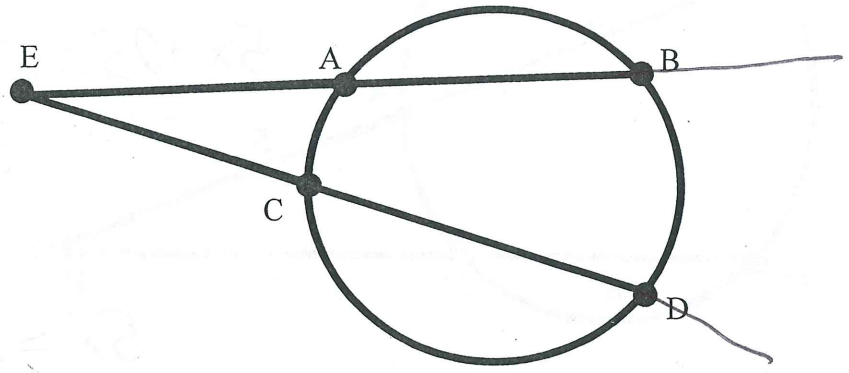
$\frac{6x^2}{6} = \frac{96}{6}$

$\sqrt{x^2} = \sqrt{16}$

$\boxed{x = 4}$

3)

Type 2: Two secants intersect OUTSIDE the circle

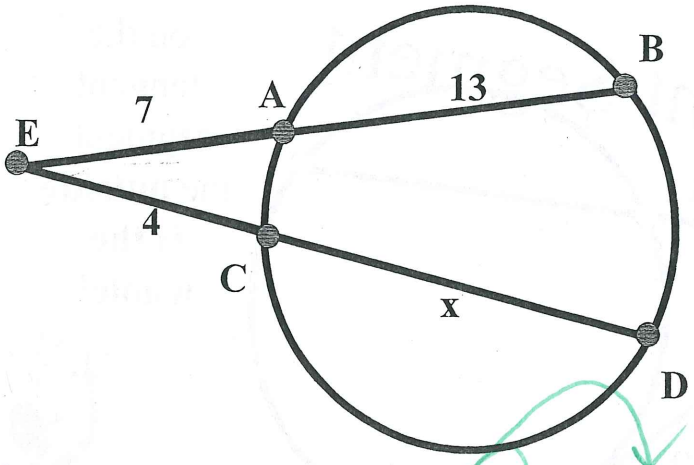


EA * EB = EC * ED

outside • whole = outside • whole

6)

Example 3:



$(7)(7+13) = 4(x+4)$

$7(20) = 4x+16$

$140 = 4x+16$

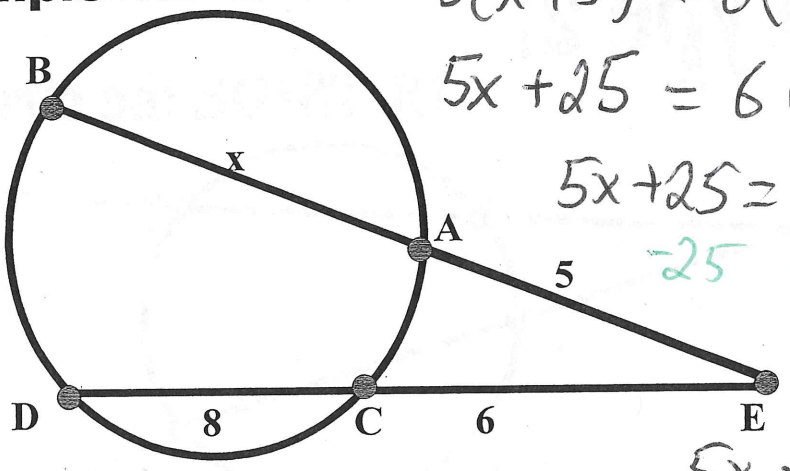
$-16 \quad -16$

$\frac{124}{4} = \frac{4x}{4}$

$x = 31$

7)

Example 4:



(outside)(whole) = (outside)(whole)

$5(x+5) = 6(6+8)$

$5x + 25 = 6(14)$

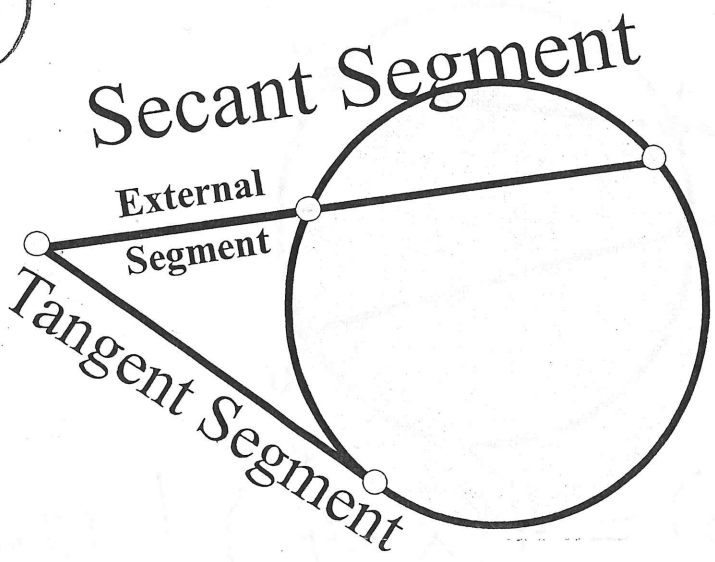
$5x + 25 = 84$

$-25 \quad -25$

$\frac{5x}{5} = \frac{59}{5}$

$x = 11.8$

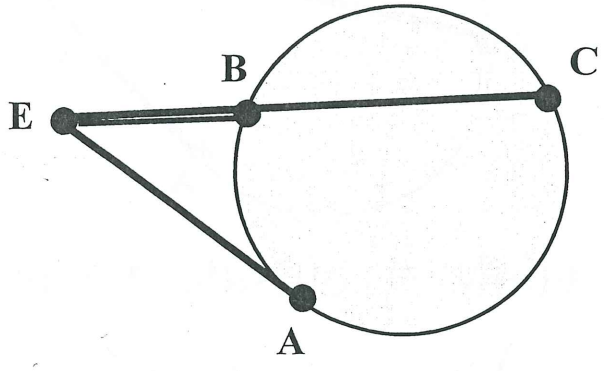
8)



Notice that on the tangent segment, the **outside is the whole!**

9)

Type 2 (with a twist): Secant and Tangent

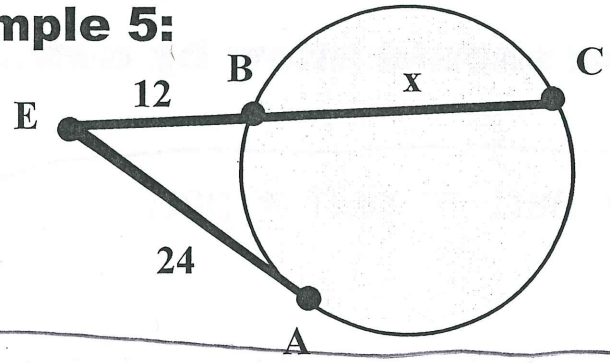


outside • whole = outside • whole

$$EA^2 = EB * EC$$

10)

Example 5:



outside • whole = outside • whole

$12(x+12) = 24(24)$

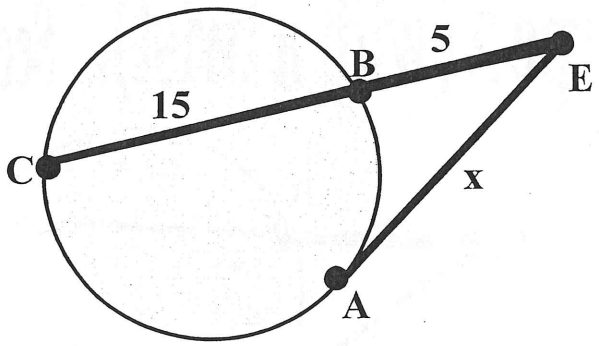
$12x + 144 = 576$

$12x = 432$

$x = 36$

11)

Example 6:



outside • whole = outside • whole

$5(5+15) = (x)(x)$

$5(20) = x^2$

$\sqrt{100} = \sqrt{x^2}$ $\quad x = 10$

12)

What you should know by now...

part • part = part • part

outside • whole = outside • whole