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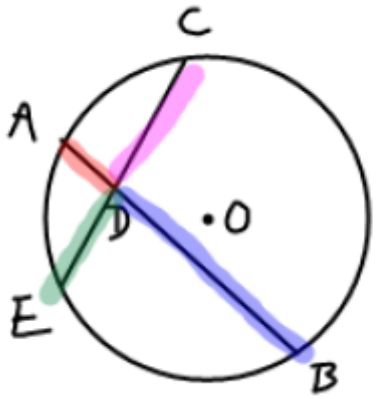
Chord-Chord Theorem

Given: $\overline{AB}$, $\overline{EC}$ chords intersecting at pt. D in ⊙O



Prove: $AD \cdot DB = ED \cdot DC$

(part)·(part) = (part)(part)

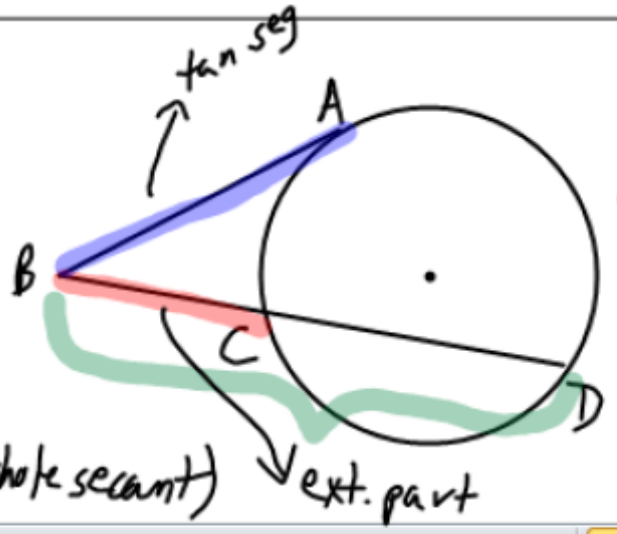
of chord $\overline{AB}$ of chord $\overline{EC}$

← We used Nspire to validate claim

Tangent-Secant Theorem

Given: $\overline{AB}$ tangent segment

$\overline{BD}$ secant segment



Prove: $AB^2 = BC \cdot BD$

(tangent)^2 = (external part of secant) • (whole secant)

11.69 x 8.27 in 100%

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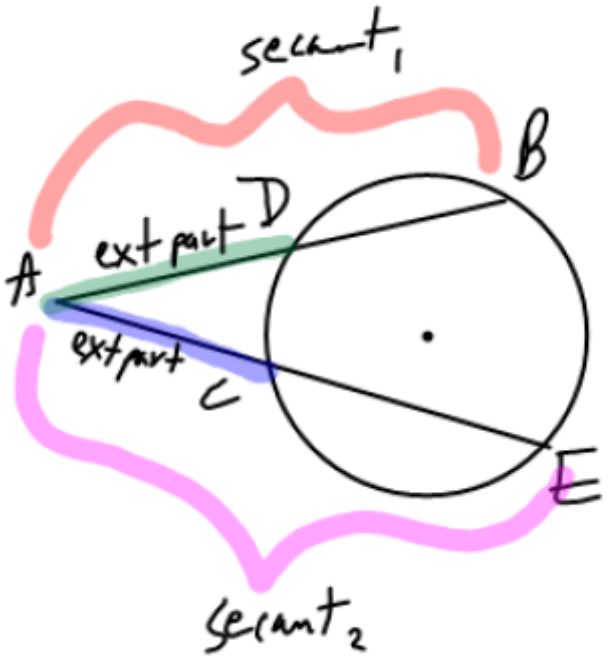
Secant-Secant Theorem

Given: Secant segments $\overline{AB}$ and $\overline{AE}$

Prove: $AD \cdot AB = AC \cdot AE$

(ext part of sec_1) $\cdot$ (sec_1) = (ext part of sec_2) $\cdot$ (sec_2)



What kind of segments are they? Find the value of x.

100%

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10.8 Power Theorems [Compatibility Mode] - Microsoft Word

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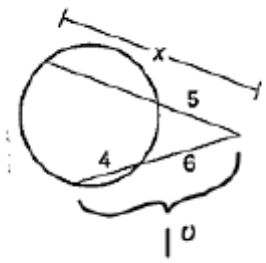
What kind of segments are they? Find the value of x.

1.

Secant - Secant

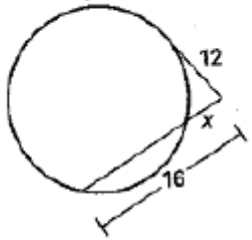


$5 \cdot X = 6 \cdot 10$

$5x = 60$

$x = 12$

2. Tangent-Secant



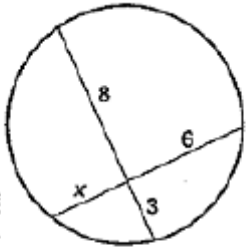
$(12)^2 = x \cdot 16$

$144 = 16x$

$9 = x$

chord - chord

3.

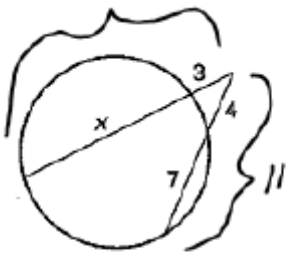


$8 \cdot 3 = 6 \cdot x$

$24 = 6x$

$3 = x$

4. 3+x



Secant - Secant

$4 \cdot 11 = 3(3+x)$

$44 = 9 + 3x$

$-9 \quad -9$

$\frac{35}{3} = \frac{3x}{3}$

$\frac{35}{3} = x$

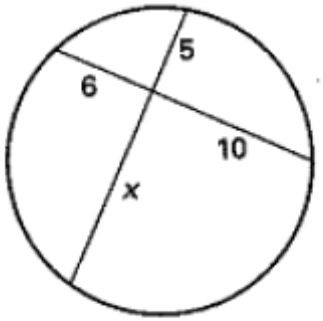
Page: 3 of 3 Words: 28 100%

11.69 x 8.27 in

chord . chord

Tangent - tangent

5.

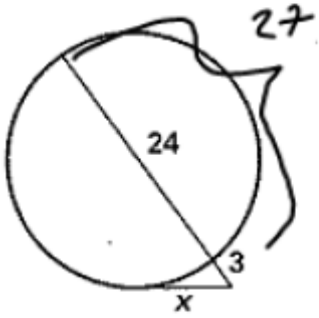


$6 \cdot 10 = 5 \cdot x$

$60 = 5x$

$12 = x$

6.



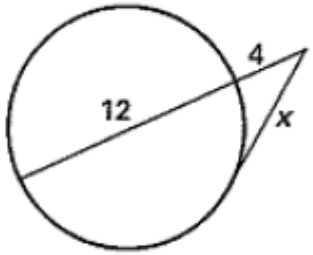
$(x)^2 = 3 \cdot 27$

$x^2 = \sqrt{81}$

$x = 9$

Reject -9

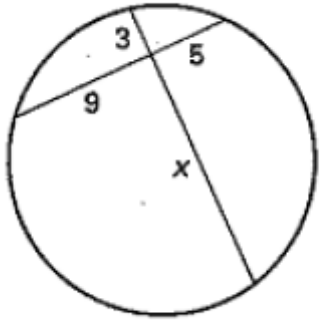
7.



$x = 8$ →

← You try it! →

8.



← $x = 15$

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Find the value of x. Round to the nearest tenth, if necessary.

4. $x(x+10) = 8 \cdot 16$

$x^2 + 10x = 128$

$x^2 + 10x - 128 = 0$

$\frac{-b \pm \sqrt{b^2-4ac}}{2a}$

$\frac{-10 \pm \sqrt{10^2-4(1)(-128)}}{2}$

$\frac{-10 \pm \sqrt{100+512}}{2}$

$\frac{-10 \pm \sqrt{612}}{2}$

$\frac{-10 - \sqrt{612}}{2}$ Reject

$\frac{-10 + \sqrt{612}}{2} \approx 7.37$ ✓

5. easy

$2 \cdot 5 = 5 \cdot x$

6. $8^2 = x \cdot 2x$

$\frac{64}{2} = \frac{2x^2}{2}$

$32 = x^2$

$\sqrt{32} = x$

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

$-4\sqrt{2} = x$ or 5.7

7. $13^2 = 5x(9+5x)$

Use Quadratic formula

8. easy

$x \cdot 31 = 20(x+20)$

9. like 4

$6 \cdot x = 4 \cdot 7$

10. $3x \cdot x = (x+2)(x+10)$

11. $x \cdot 4x = 8(x+2)$

$4x^2 = 8x + 16$

$4x^2 - 8x - 16 = 0$

Use QF.

12. easy

$3 \cdot 18 = 3x \cdot 2x$

$\frac{54}{6} = \frac{6x^2}{6}$

$9 = x^2$

$3 = x$

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11.69 x 8.27 in