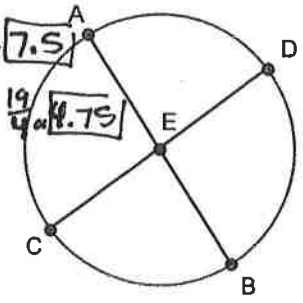
Chapter 8: Circles
Lesson 8-6: Segment Formulas
Classwork

Name Key
Date
Period

Secants, chords and tangents are shown. For questions 1 - 6, refer to the figure below and find the indicated value.



9 1. If CE = 3, DE = 6, and AE = 2, find BE. $3(6) = 2BE$ $BE = 9$

7.5 2. If AE = 3, BE = 5, and DE = 2, find CE. $3(5) = 2CE$ $CE = 7.5$

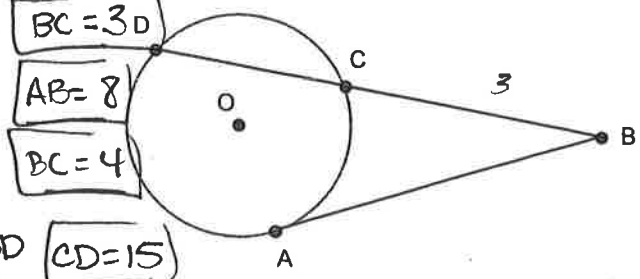
4.75 3. If AE = 3, BE = 6 ⅓, and CE = 4, find DE. $3(6\frac{1}{3}) = 4DE$ $DE = \frac{19}{4}$ or 4.75

24 4. AE = 12, BE = 18, and DE = 9, find CE. 24

8.84 5. If AE = 3.4, BE = 5.2, and CE = 2, find DE. 8.84

4 6. If AE = 2x, BE = 4x, CE = 8, and DE = 16, find x. $8x^2 = 128$ $x^2 = 16$ $x = 4$

For questions 7 - 11, refer to the figure below and find the indicated value.



$AB^2 = BD \cdot BC$

6 7. If BC = 3 and BD = 12, find AB. $BA^2 = 3 \cdot 12$ $BA = 6$

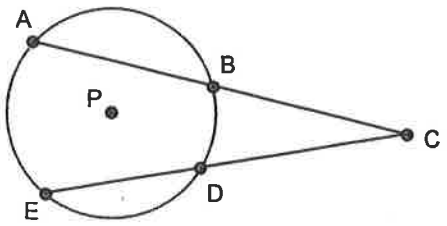
3 8. If AB = 6 and BD = 12, find BC. $36 = 12(BC)$ $BC = 3$

8 9. If BC = 4 and CD = 12, find AB. $AB^2 = 4(16)$ $AB = 8$

4 10. If AB = 6 and BD = 9, find BC. $36 = 9BC$ $BC = 4$

15 11. If AB = 10 and BC = 5, find CD. $100 = 5 \cdot BD$ $BD = 20$ $CD = 15$

For questions 12 - 21, refer to the figure below and find the indicated value.



6 12. If AC = 12, BC = 4 and CE = 8, find CD. $4 \cdot 12 = 8x$ 6

9 13. If CE = 9, CD = 4, and BC = 3, find AB. $4 \cdot 9 = 3AC$ $AC = 12$ 9

12 14. If DE = 3, DC = 9 and BC = 6, find AB. $9 \cdot 12 = 6 \cdot AC$ $AC = 18$ 12

10 15. If AB = 17, BC = 3, And CD = 6, find CE. $3(20) = 6CE$ 10

5 16. If DE = 8, CD = 7, and AC = 21, find BC. $7(15) = 21AC$ 5

14.75 17. If CE = 15, DE = 10, BC = 4, find AB. $5(15) = 4AC$ $AC = 18.75$ $AB = 14.75$

8 18. If CD = 8, DE = 10, and AB = 10, find BC. $8(18) = BC(BC+10)$ $144 = x^2 + 10x$ $x^2 + 10x - 144$ $(x+18)(x-8)$ $x = -18$ $x = 8$

$\frac{-10 \pm \sqrt{100 - 4(1)(-144)}}{2}$ $\frac{-10 \pm 26}{2}$ 8 or -18

3.16 $\sqrt{10}$ 19. If BC = 5, AB = 7, CD = x and DE = 5x, find x. $5(12) = x(x+5x)$ $60 = x^2 + 5x^2$ $x = \sqrt{10}$

10 20. If BC = 12, AB = 13, CD = x, and DE = 2x, find x. $12(25) = x(x+2x)$ $x(3x)$ $300 = 3x^2$ $x = 10$

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For questions 1 - 6, refer to the figure below and find the indicated value.

5 1. If AB = 25, BC = 3, and BE = 15, find BD. $25(3) = 15(BD)$

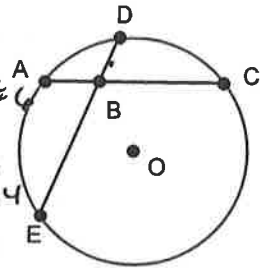
6 2. If AB = 4, BC = 9, and BD = 6, find BE. $4(9) = 6(BE)$

14 3. If AC = 16, AB = 4, and BE = 8, find DE. $4(12) = 8DB$ $DB = 6$

19 4. If DE = 17, BD = 7, and AB = 5, find AC. $10(7) = 5(BC)$ $BC = 14$

2 5. If AB = 3, BC = 5 ⅓ and BE = 8, find BD. $3(5\frac{1}{3}) = 8BD$

8 6. If BE = 16, BD = 4, and B is the midpoint of AC, find AB. $16(4) = x(x)$ $64 = x^2$



In the accompanying diagram, * is tangent to circle O at D and * is a secant.

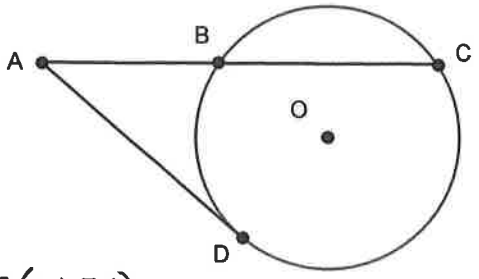
27 7. If AD = 9 and AB = 3, find AC. $9^2 = 3 \cdot AC$

4 8. If BC = 15 and AB = 1, find AD. $AD^2 = 1 \cdot 16$

16 9. If AD = 8 and AB = 4, find AC. $8^2 = 4 \cdot AC$

6 10. If AB = 4 and BC = 5, find AD. $AD^2 = 4 \cdot 9$

12 11. If AD = $3\sqrt{5}$ and AB = 3, find BC. $(3\sqrt{5})^2 = 3(3+BC)$ $45 = 9 + 3BC$



In the accompanying diagram, two secants are drawn from the same point.

18 12. If AB = 5, AC = 8, and AD = 2, find DE. $5 \cdot 8 = 2(2+DE)$ $40 = 4 + 2DE$

2 13. If AB = 3, BC = 7 and AE = 15, find AD. $3(10) = AD(15)$

23 14. If AB = 6, BC = 12, and AD = 4, find DE. $6(18) = 4(4+DE)$

4 15. If AC = 20, AD = 8, and DE = 2, find AB. $AB(20) = 8(10)$

11 16. If AB = 5, AD = 8 and DE = 2, find BC. $5(5+BC) = 8(10)$

20 17. If B is the midpoint of $\overline{AC}$, and AD = 8, and DE = 17, find AC. $AB(2AB) = 8(25)$ $2AB^2 = 200$ $AB^2 = 100$