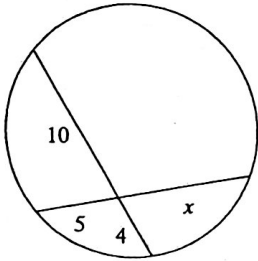


**Segments in a Circle Practice**

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Solve for  $x$ . Assume that lines which appear tangent are tangent.

1)

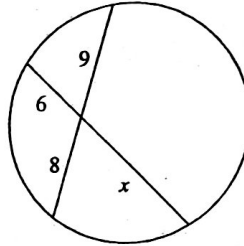


$$10 \cdot 4 = 5 \cdot x$$

$$40 = 5x$$

$$8 = x$$

2)

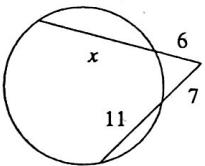


$$6 \cdot x = 9 \cdot 8$$

$$6x = 72$$

$$x = 12$$

3)



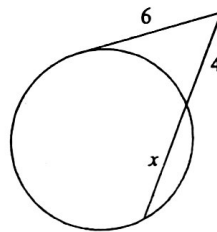
$$6(x+6) = 7(11+7)$$

$$6x+36 = 126$$

$$6x = 90$$

$$x = 15$$

4)



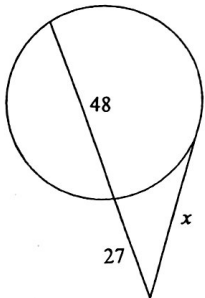
$$6^2 = 4(x+4)$$

$$36 = 4x+16$$

$$20 = 4x$$

$$5 = x$$

5)

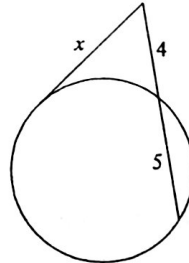


$$x^2 = 27(48+27)$$

$$x^2 = 2025$$

$$x = 45$$

6)

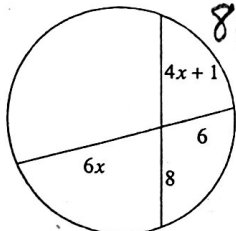


$$x^2 = 4(4+5)$$

$$x^2 = 36$$

$$x = 6$$

7)



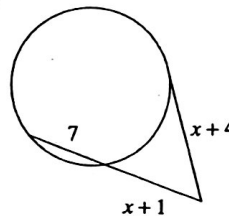
$$8(4x+1) = 6(6x)$$

$$32x+8 = 36x$$

$$8 = 4x$$

$$2 = x$$

8)



$$(x+4)^2 = (x+1)(7+x+1)$$

$$x^2+8x+16 = (x+1)(x+8)$$

$$x^2+8x+16 = x^2+9x+8$$

$$-x^2 \quad -8x \quad -8 \quad -x^2 \quad -8x \quad +8$$

$$8 = x$$

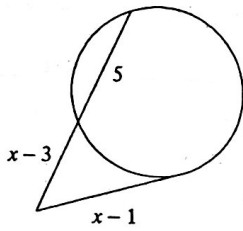
$$a^2 = \frac{1}{2}(180^2 - 16^2)$$

$$= 34$$

$$112 \quad b = \frac{1}{2}(176) = 88$$

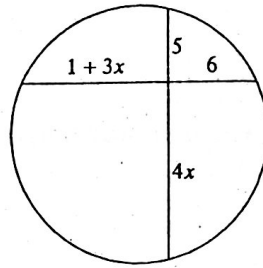
$$c = 2(88) - 110 = 76$$

9)



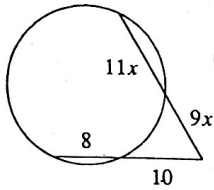
$$\begin{aligned} (x-1)^2 &= (x-3)(x-3+5) \\ x^2 - 2x + 1 &= (x-3)(x+2) \\ x^2 - 2x + 1 &= x^2 - x - 6 \\ x^2 - 2x + 1 - x^2 + x + 6 &= 0 \\ -x + 7 &= 0 \\ 7 &= x \end{aligned}$$

10)



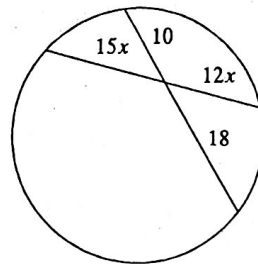
$$\begin{aligned} 6(1+3x) &= 5(4x) \\ 6+18x &= 20x \\ 6 &= 2x \\ 3 &= x \end{aligned}$$

11)



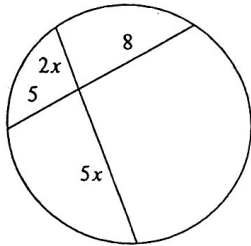
$$\begin{aligned} 9x(9x+11x) &= 10(10+8) \\ 180x^2 &= 180 \\ x^2 &= 1 \\ x &= 1 \end{aligned}$$

12)



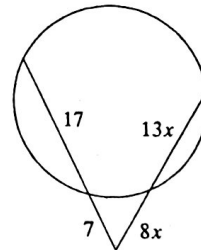
$$\begin{aligned} 15x(10x) &= 10(18) \\ 180x^2 &= 180 \\ x^2 &= 1 \\ x &= 1 \end{aligned}$$

13)



$$\begin{aligned} 5(8) &= 2x(5x) \\ 40 &= 10x^2 \\ 4 &= x^2 \\ 2 &= x \end{aligned}$$

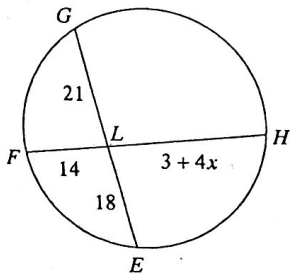
14)



$$\begin{aligned} 7(7+17) &= 8x(8x+13x) \\ 168 &= 168x^2 \\ 1 &= x^2 \\ 1 &= x \end{aligned}$$

Find the measure of the line segment indicated. Assume that lines which appear tangent are tangent.

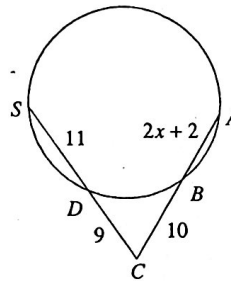
15) Find LH



$$\begin{aligned} 21(18) &= 14(3+4x) \\ 378 &= 42+56x \\ 336 &= 56x \\ 6 &= x \end{aligned}$$

$$\begin{aligned} LH &= 3+4x \\ &= 3+4(6) \\ &= 27 \end{aligned}$$

16) Find AB



$$\begin{aligned} 9(9+11) &= 10(10+2x+2) \\ 180 &= 120+20x \\ 60 &= 20x \\ 3 &= x \end{aligned}$$

$$\begin{aligned} AB &= 2x+2 \\ &= 2(3)+2 \\ &= 8 \end{aligned}$$