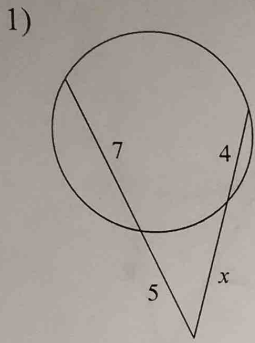


Segment and Angles Practice

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



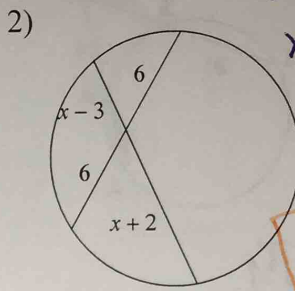
$$5(12) = x(x+4)$$

$$60 = x^2 + 4x$$

$$0 = x^2 + 4x - 60$$

$$0 = (x+10)(x-6)$$

$$x = -10 \quad x = 6$$



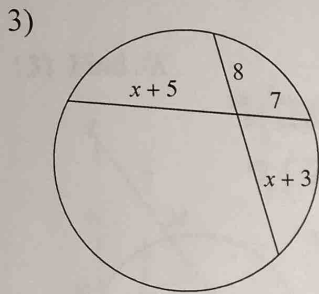
$$(x-3)(x+2) = 6(6)$$

$$x^2 + 2x - 3x - 6 = 36$$

$$x^2 - x - 42 = 0$$

$$(x-7)(x+6) = 0$$

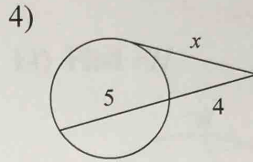
$$x = 7 \quad x = -6$$



$$8(x+3) = 7(x+5)$$

$$8x + 24 = 7x + 35$$

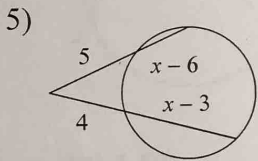
$$x = 11$$



$$x^2 = 4(9)$$

$$x^2 = 36$$

$$x = 6$$

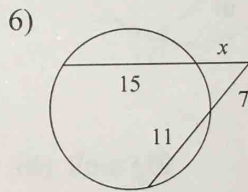


$$5(5+x-6) = 4(4+x-3)$$

$$5(x-1) = 4(x+1)$$

$$5x - 5 = 4x + 4$$

$$x = 9$$



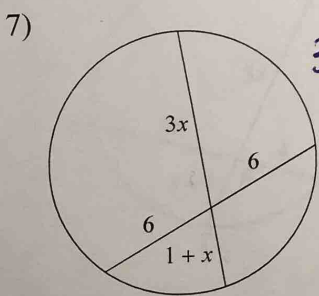
$$x(15+x) = 7(18)$$

$$15x + x^2 = 126$$

$$x^2 + 15x - 126 = 0$$

$$(x-6)(x+21) = 0$$

$$x = 6 \quad x = -21$$



$$3x(1+x) = 6(6)$$

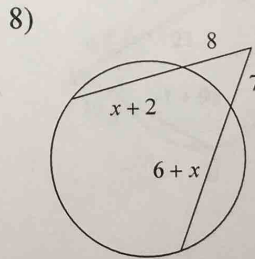
$$3x + 3x^2 = 36$$

$$3x^2 + 3x - 36 = 0$$

$$x^2 + x - 12 = 0$$

$$(x+4)(x-3) = 0$$

$$x = -4 \quad x = 3$$

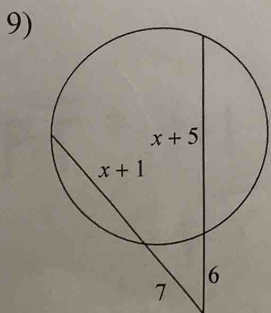


$$8(x+2+8) = 7(6+x+7)$$

$$8(x+10) = 7(x+13)$$

$$8x + 80 = 7x + 91$$

$$x = 11$$

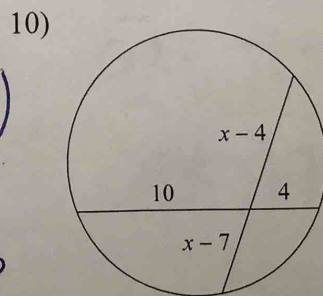


$$6(x+5+6) = 7(x+1+7)$$

$$6(x+11) = 7(x+8)$$

$$6x + 66 = 7x + 56$$

$$10 = x$$



$$(x-4)(x-7) = 4(10)$$

$$x^2 - 7x - 4x + 28 = 40$$

$$x^2 - 11x + 28 = 40$$

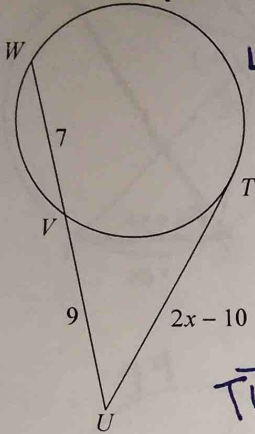
$$x^2 - 11x - 12 = 0$$

$$(x-12)(x+1) = 0$$

$$x = 12 \quad x = -1$$

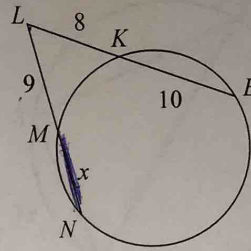
Find the measure of the line segment indicated. Assume that lines which appear tangent are tangent.

11) Find TU



$$\begin{aligned} (2x-10)^2 &= 9(9+7) \\ (2x-10)(2x-10) &= 9(16) \\ 4x^2 - 20x - 20x + 100 &= 144 \\ 4x^2 - 40x - 44 &= 0 \\ x^2 - 10x - 11 &= 0 \\ (x-11)(x+1) &= 0 \\ x &= 11 \quad x \neq -1 \\ \overline{TU} &= 2(11) - 10 \\ \overline{TU} &= 12 \end{aligned}$$

12) Find NL

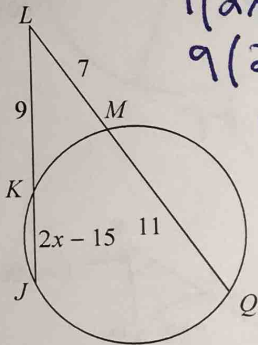


$$\begin{aligned} 8(18) &= 9(9+x) \\ 144 &= 81 + 9x \\ 63 &= 9x \\ x &= 7 \end{aligned}$$

$$\overline{NL} = 9 + 7$$

$$\overline{NL} = 16$$

13) Find JK

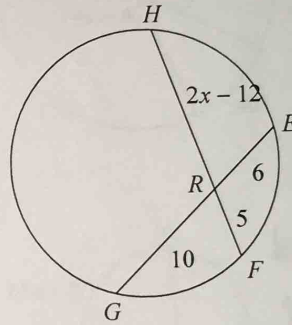


$$\begin{aligned} 9(2x-15+9) &= 7(18) \\ 9(2x-6) &= 126 \\ 18x - 54 &= 126 \\ 18x &= 180 \\ x &= 10 \end{aligned}$$

$$\overline{JK} = 2(10) - 15$$

$$\overline{JK} = 5$$

14) Find FH

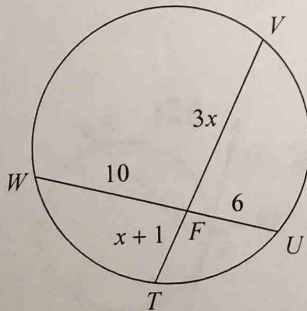


$$\begin{aligned} 5(2x-12) &= 10(6) \\ 10x - 60 &= 60 \\ 10x &= 120 \\ x &= 12 \end{aligned}$$

$$\overline{FH} = 5 + 2(12) - 1$$

$$\overline{FH} = 17$$

15) Find FT

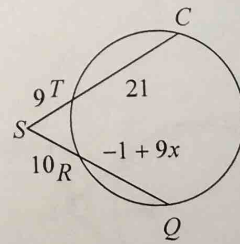


$$\begin{aligned} 3x(x+1) &= 6(10) \\ 3x^2 + 3x &= 60 \\ 3x^2 + 3x - 60 &= 0 \\ x^2 + x - 20 &= 0 \\ (x+5)(x-4) &= 0 \\ x &= 5 \quad x = 4 \end{aligned}$$

$$\overline{FT} = 4 + 1$$

$$\overline{FT} = 5$$

16) Find QR



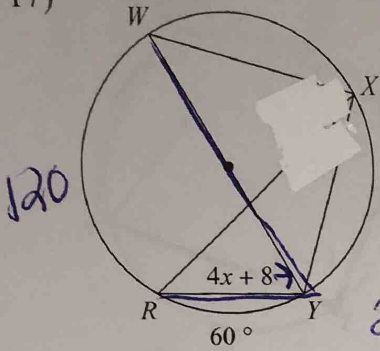
$$\begin{aligned} 9(30) &= 10(10 - 1 + 9x) \\ 270 &= 10(9 + 9x) \\ 27 &= 9 + 9x \\ 18 &= 9x \\ x &= 2 \end{aligned}$$

$$\overline{QR} = -1 + 9(2)$$

$$\overline{QR} = 17$$

Solve for x . Assume that lines which appear to be diameters are actual diameters. Assume that lines which appear tangent are tangent.

17)



120

$4x+8$ is an inscribed angle $\frac{1}{2}$ of 120°

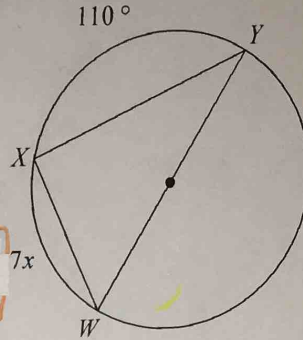
$$2(4x+8) = 120$$

$$4x+8 = 60$$

$$4x = 52$$

$$x = 13$$

18)

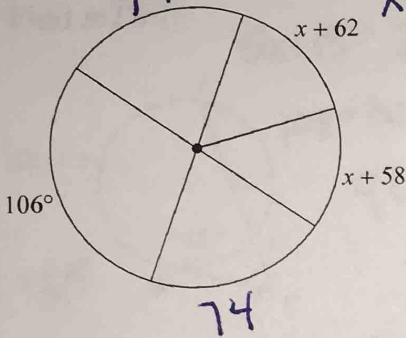


$$7x + 110 = 180$$

$$7x = 70$$

$$x = 10$$

19)

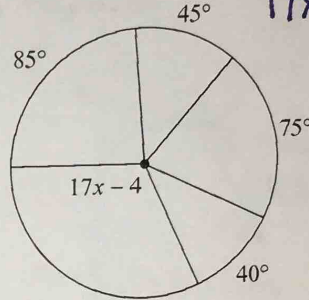


$$x + 62 + x + 58 + 74 = 180$$

$$2x + 194 = 180$$

$$2x = -14$$

$$x = -7$$



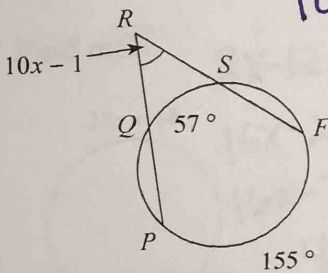
$$17x - 4 + 85 + 45 + 75 + 40 = 360$$

$$17x + 241 = 360$$

$$17x = 119$$

$$x = 7$$

21)

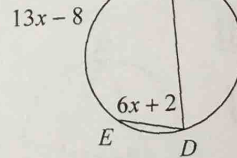


$$10x - 1 = \frac{1}{2}(55 - 57)$$

$$20x - 2 = 98$$

$$20x = 100$$

$$x = 5$$

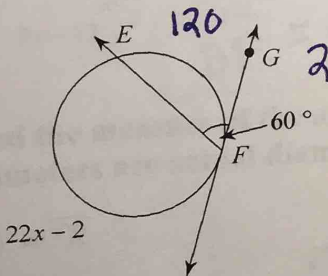


$$6x + 2 = \frac{1}{2}(13x - 8)$$

$$12x + 4 = 13x - 8$$

$$12 = x$$

23)



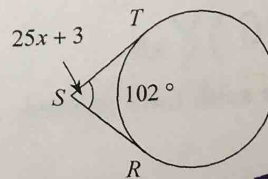
$$22x - 2 + 120 = 360$$

$$22x + 118 = 360$$

$$22x = 242$$

$$x = 11$$

24)



$$360 - 102 = 258$$

$$25x + 3 = \frac{1}{2}(258 - 102)$$

$$25x + 3 = \frac{1}{2}(156)$$

$$25x + 3 = 78$$

$$25x = 75$$

$$x = 3$$

Find the measure of the arc or angle indicated.

25) Find $m\angle BYX$

$16x - 2$
 $16x - 2 - 12 + 6x + 10x - 10 = 360$
 $32x - 24 = 360$
 $32x = 384$
 $x = 12$
 $m\angle BYX = 95^\circ$

26) Find $m\angle LGF$

$10x + 50 + 7x + 13 + 76 = 360$
 $17x + 139 = 360$
 $17x = 221$
 $x = 13$
 $m\angle LGF = 90^\circ$

27) Find $m\widehat{TWU}$

$5x + 15 = \frac{1}{2}(22x - 1 - 65)$
 $10x + 30 = 22x - 66$
 $96 = 12x$
 $x = 8$
 $m\widehat{TWU} = 240^\circ$

28) Find $m\widehat{CD}$

$133x + 4 + 42x + 6 = 360$
 $175x + 10 = 360$
 $175x = 350$
 $x = 2$
 $m\widehat{CD} = 90^\circ$

29) Find $m\widehat{DF}$

$8x - 12 = \frac{1}{2}(22x + 14 - (10x - 6))$
 $16x - 24 = 22x + 14 - 10x + 6$
 $16x - 24 = 12x + 20$
 $4x = 44$
 $x = 11$
 $m\widehat{DF} = 104^\circ$

30) Find $m\angle CDE$

$11x + 6 = \frac{1}{2}(26x - 4)$
 $11x + 6 = 13x - 2$
 $8 = 2x$
 $x = 4$
 $m\angle CDE = 50^\circ$

Find the measure of the arc or central angle indicated. Assume that lines which appear to be diameters are actual diameters.

31) $m\widehat{TR}$

$57 + 40$
 $m\widehat{TR} = 97^\circ$

32) $m\widehat{HJ}$

$m\widehat{HJ} = 45 + 45 + 65$
 $m\widehat{HJ} = 155^\circ$

$m\widehat{K} = 360 - 150 - 55 - 45 - 65$
 $= 45$