

HW 1 - Angles in Circles

State the type of angle (central, inscribed, inside, or outside). Find the measure of the arc or central angle indicated or solve for x. Assume that lines which appear to be diameters are actual diameters.

1) $m\widehat{TQS}$ **central**

105 285°

2) **inscribed**

$x = \frac{1}{2}(200)$
 $x = 100^\circ$

$360 - 115 - 45 = 200$

3) **inscribed**

$90 = \frac{1}{2}(17x - 7)$
 $180 = 17x - 7$
 $187 = 17x$
 $x = 11$

4) **outside**

$x = \frac{1}{2}(232 - 128)$
 $x = 52^\circ$

$360 - 232 = 128$

5) **inside**

$101 = \frac{1}{2}(x + 52)$
 $202 = x + 52$
 $150^\circ = x$

6) **central**

$135 + 6x + 9 = 180$
 $6x + 144 = 180$
 $6x = 36$
 $x = 6$

7) **inscribed**

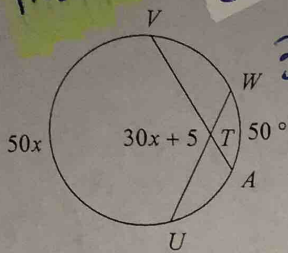
$8x - 7 = \frac{1}{2}(130)$
 $8x - 7 = 65$
 $8x = 72$
 $x = 9$

8) **outside**

$360 - (31x + 13) \rightarrow 360 - 31x - 13 = 347 - 31x$

$50 = \frac{1}{2}(31x + 13 - (347 - 31x))$
 $50 = \frac{1}{2}(31x + 13 - 347 + 31x)$
 $50 = \frac{1}{2}(62x - 334)$
 $50 = 31x - 167$
 $217 = 31x$
 $x = 7$

9) **inside**



$$30x + 5 = \frac{1}{2}(50x + 50)$$

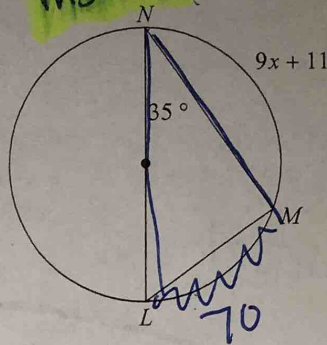
$$30x + 5 = 25x + 25$$

$$5x = 20$$

$$x = 4$$

10)

inscribed



$$9x + 11 + 70 = 180$$

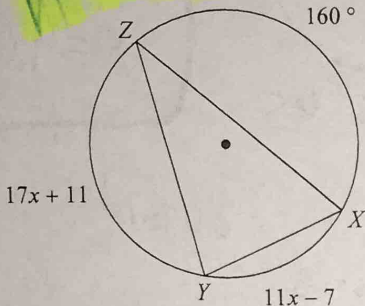
$$9x + 81 = 180$$

$$9x = 99$$

$$x = 11$$

11)

inscribed

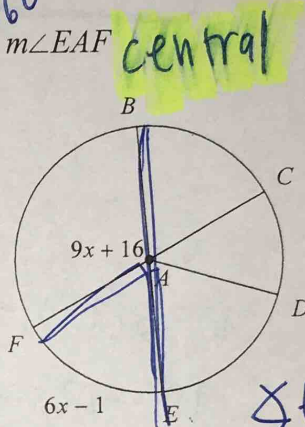


$$160 + 17x + 11 + 11x - 7 = 360$$

$$164 + 28x = 360$$

$$28x = 196$$

$$x = 7$$



$$9x + 16 + 6x - 1 = 180$$

$$15x + 15 = 180$$

$$15x = 165$$

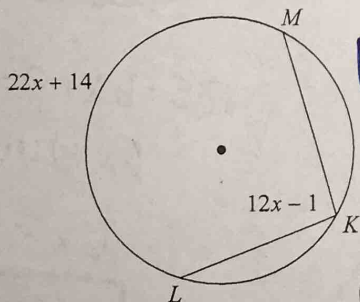
$$x = 11$$

$$\angle EAF = 6(11) - 1$$

$$\angle EAF = 65^\circ$$

13) Find $m\angle LKM$

inscribed



$$12x - 1 = \frac{1}{2}(22x + 14)$$

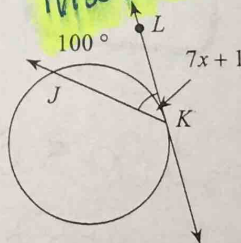
$$12x - 1 = 11x + 7$$

$$x = 8$$

$$\angle LKM = 12(8) - 1$$

$$\angle LKM = 95^\circ$$

inscribed



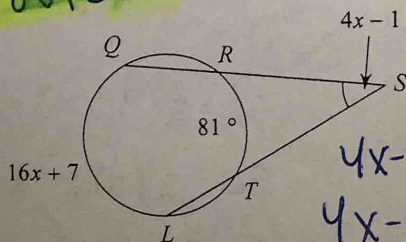
$$7x + 1 = \frac{1}{2}(100)$$

$$7x + 1 = 50$$

$$7x = 49$$

$$x = 7$$

15) **outside**



$$4x - 1 = \frac{1}{2}(16x + 7 - 81)$$

$$4x - 1 = \frac{1}{2}(16x - 74)$$

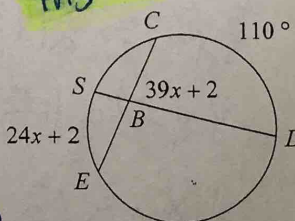
$$4x - 1 = 8x - 37$$

$$36 = 4x$$

$$x = 9$$

16)

inside



$$39x + 2 = \frac{1}{2}(110 + 24x + 2)$$

$$39x + 2 = \frac{1}{2}(112 + 24x)$$

$$39x + 2 = 56 + 12x$$

$$27x = 54$$

$$x = 2$$