

Question: How can I use the diagram to write an equation?

Secondary Math 2

Name _____

9.2 Inscribed Angle Extra Examples

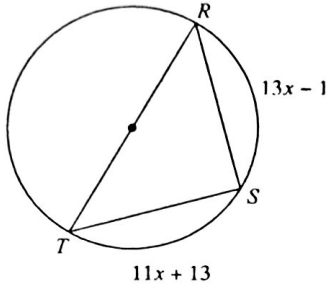
Date _____ Period _____

Find the measure of the arc or angle indicated.

$$2 \cdot \text{Angle} = \text{Arc}$$

$$\text{Angle} = \frac{1}{2} \text{Arc}$$

1) Find $m\widehat{ST}$



$$11x + 13 + 13x - 1 = 180$$

$$24x + 12 = 180$$

$$24x = 168$$

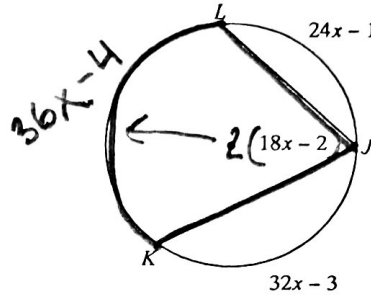
$$x = 7$$

$$m\widehat{ST} = 11(7) + 13$$

$$= 77 + 13$$

$$= \boxed{90^\circ}$$

2) Find $m\widehat{JK}$



$$36x - 4 + 24x - 1 + 32x - 3 = 360$$

$$92x - 8 = 360$$

$$+8 \quad +8$$

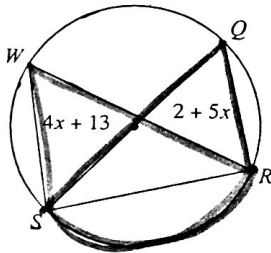
$$\frac{92x}{92} = \frac{368}{92}$$

$$x = 4$$

$$m\widehat{JK} = 32(4) - 3$$

$$= 128 - 3 = \boxed{125^\circ}$$

3) Find $m\widehat{RS}$



Since the angles correspond to the same arc, we know the angles have to be the same measure.

$$4x + 13 = 2 + 5x$$

$$-4x \quad -4x$$

$$13 = 2 + x$$

$$-2 \quad -2$$

$$11 = x$$

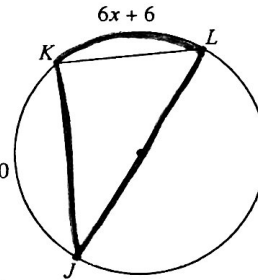
$$m\angle SQR = 2 + 5(11)$$

$$= 2 + 55$$

$$= 57^\circ$$

$$m\widehat{RS} = 2(57) = \boxed{114^\circ}$$

4) Find $m\angle LJK$



$$8x + 20 + 6x + 6 = 180$$

$$14x + 26 = 180$$

$$14x = 154$$

$$x = 11$$

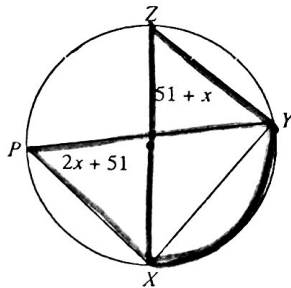
$$m\widehat{KL} = 6(11) + 6$$

$$= 66 + 6$$

$$= 72$$

$$m\angle LJK = \frac{72}{2} = \boxed{36^\circ}$$

5) Find $m\widehat{YX}$



$$2x + 51 = 51 + x$$

$$-x \quad -x$$

$$x + 51 = 51$$

$$-51 \quad -51$$

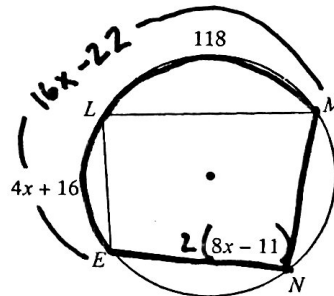
$$x = 0$$

$$m\angle XZY = 51 + 0$$

$$= 51^\circ$$

$$m\widehat{YX} = \frac{2(51)}{2} = \boxed{102^\circ}$$

6) Find $m\widehat{EL}$



$$16x - 22 = 4x + 16 + 118$$

$$16x - 22 = 4x + 134$$

$$-4x \quad -4x$$

$$12x - 22 = 134$$

$$+22 \quad +22$$

$$\frac{12x}{12} = \frac{156}{12}$$

$$x = 13$$

$$m\widehat{EL} = 4(13) + 16$$

$$= 52 + 16$$

$$= \boxed{68^\circ}$$