

Name: Key

**Segment (and Angle) Relationships Homework #1**

**Find the value of x and SR if R is between S and T. Justify steps!**

1.  $SR = 3x, RT = 2x + 1, ST = 6x - 1$

2.  $SR = 5x - 3, ST = 7x + 1, RT = 3x - 1$

$x = 2$   
 $SR = 6$

$x = 5$   
 $SR = 22$

**Find the value of the variable and ST if S is between R and T. Justify steps!**

3.  $RS = 2x, ST = 3x, RT = 25$

4.  $RS = 16, ST = 2x, RT = 5x + 10$

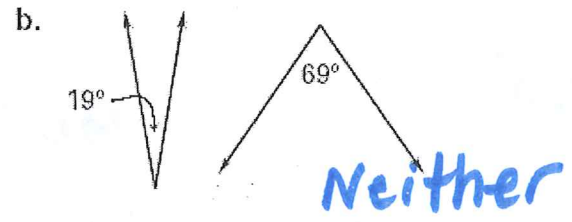
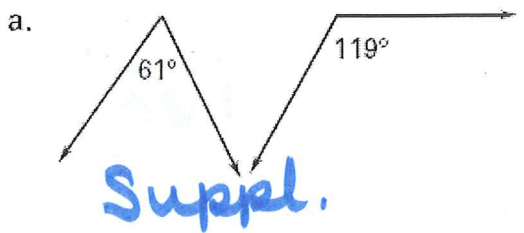
$x = 5$   
 $ST = 15$

$x = 2$   
 $ST = 4$

5.  $RS = 3y + 1, ST = 2y, RT = 21$

$y = 4$     $ST = 8$

6. Determine whether the angles are *complementary*, *supplementary*, or *neither*.



7. a.  $\angle A$  is a supplement of  $\angle B$ , and  $m\angle B = 42^\circ$ . Find  $m\angle A$ .  $138^\circ$

b.  $\angle C$  is a complement of  $\angle D$ , and  $m\angle C = 42^\circ$ . Find  $m\angle D$ .  $48^\circ$

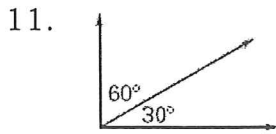
**Decide whether the statement is true or false. If the statement is false, reword the statement so it is true. MUST DO ON OWN!**

8. Two angles are complementary if the sum of their measures is  $180^\circ$  **False**

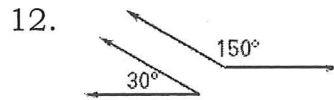
9. Two angles are supplementary if the sum of their measures is  $180^\circ$  **True**

10. Two angles are adjacent angles if they share a common vertex. **False**

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**Determine whether the angles are complementary, supplementary or neither.**

Compl.



Suppl.



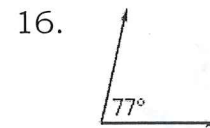
Neither

**Find the measure of the complement of the given angle.**

58'



75'



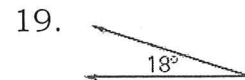
13'

**Find the measure of the supplement of the given angle.**

20'



90'

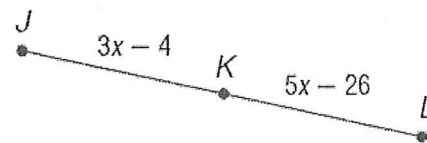


162'

20. Find  $x$  and the measure of  $\overline{JK}$  if  $K$  is the midpoint of  $\overline{JL}$ . Show work.

$$x = 11$$

$$JK = 29$$

**Find the value of the variable and QR if Q is between P and R. Justify steps!**

21.  $PQ = 1 - x$ ,  $QR = 4x + 17$ ,  $PR = -3x$

$$x = -3$$

$$QR = 5$$

22.  $PR = 7n + 8$ ,  $PQ = 4n - 3$ ,  $QR = 6n + 2$

$$n = 3$$

$$QR = 20$$