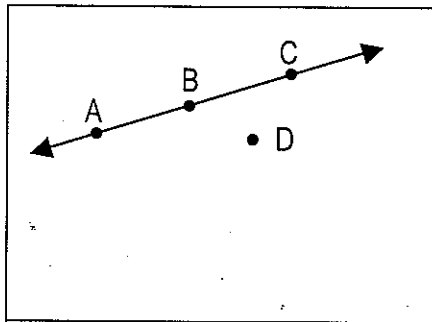


1.2 Use Segments and Congruence Notes

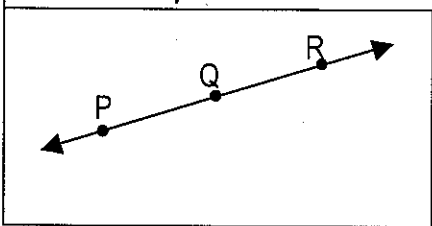


- The measure of \overline{AB} is written AB and is the distance between the points A and B . To find the distance either count the positions in between the endpoints OR take the absolute value of the difference of the coordinates.
- Point B is between A and C because A , B , and C are collinear and B is between A and C . D is not between A and C because A , B , and D are noncollinear.

A postulate is something accepted to be true without proof.

Two segments are said to be congruent if they have the same measure. Segments are congruent. Measures are equal.

You can say $AB = CD$ or $\overline{AB} \cong \overline{CD}$, but you CANNOT say $AB \cong CD$ or $\overline{AB} = \overline{CD}$.



Segment Addition Postulate (SAP):

If Q is between P and R , then $PQ + QR = \overline{PR}$

Examples:

Find the indicated lengths.



- | | | | | |
|--|---|---|---|---|
| 1. VW
$ -14 - (-8) $
$ -14 + 8 $
$ -6 $
<u>6</u> | 2. WY
$ -8 - 7 $
$ -15 $
<u>15</u> | 3. YZ
$ 7 - 16 $
$ -9 $
<u>9</u> | 4. XV
$ -1 - (-14) $
$ -1 + 14 $
$ 13 $
<u>13</u> | 5. ZV
$ 16 - (-14) $
$ 16 + 14 $
$ 30 $
<u>30</u> |
|--|---|---|---|---|

6. Find KM .



$$KL + LM = KM$$

$$24 + 12 = KM$$

$$36 = KM$$

$KM = 36$

7. Find ST .



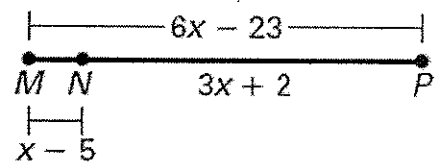
$$RS + ST = RT$$

$$18 + ST = 37$$

$$ST = 19$$

$ST = 19$

8. Find NP .



$$MN + NP = MP$$

$$x - 5 + 3x + 2 = 6x - 23$$

$$4x - 3 = 6x - 23$$

$$-2x - 3 = -23$$

$$-2x = -20$$

$$x = 10$$

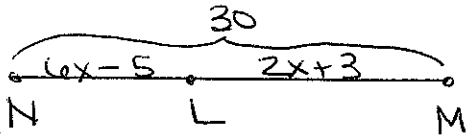
$$NP = 3(10) + 2$$

$$= 30 + 2$$

$$= 32$$

$NP = 32$

9. Find LM if L is between N and M.
 $NL = 6x - 5$, $LM = 2x + 3$, and $NM = 30$.



$$NL + LM = NM$$

$$6x - 5 + 2x + 3 = 30$$

$$8x - 2 = 30$$

$$8x = 32$$

$$x = 4$$

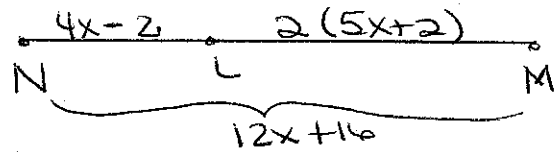
$$LM = 2(4) + 3$$

$$= 8 + 3$$

$$= 11$$

$$LM = 11$$

10. Find NL if L is between N and M.
 $NL = 4x - 2$, $NM = 12x + 16$, and
 $LM = 2(5x + 2)$



$$NL + LM = NM$$

$$4x - 2 + 2(5x + 2) = 12x + 16$$

$$4x - 2 + 10x + 4 = 12x + 16$$

$$14x + 2 = 12x + 16$$

$$2x = 14$$

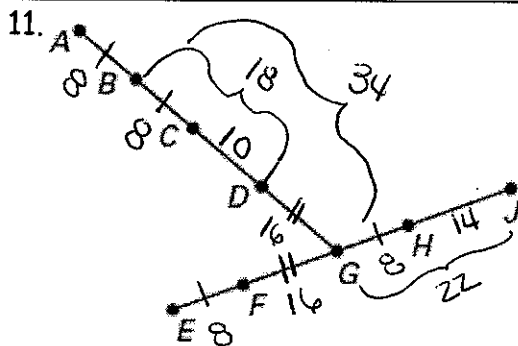
$$x = 7$$

$$NL = 4(7) - 2$$

$$= 28 - 2$$

$$= 26$$

$$NL = 26$$



- If $CD = 10$, $BD = 18$, $GJ = 22$, $BG = 34$,
 $AB = BC = EF = GH$ and $DG = GF$. Find
the indicated lengths.

$$AB = 8$$

$$FG = 16$$

$$CG = 26$$

$$EH = 32$$

$$AG = 42$$

$$EJ = 46$$

Review...

True or False? ...

12. C and B are collinear.

(T) F

13. \overleftrightarrow{AG} is the intersection of planes K and L.

T (F)

14. \overleftrightarrow{AB} and \overleftrightarrow{MN} intersect in \overleftrightarrow{CD} . Point G

T (F)

15. \overleftrightarrow{EF} intersects plane K at B.

(T) F

