

Measuring Segments

Lesson Objective:

WBAT find lengths of segments using its midpoint

Midpoints and Segment Bisectors

Midpoint: The midpoint of a segment is the point that divides the segment into 2 $\cong$ segments.

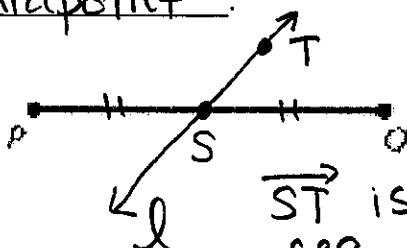


$$\overline{PM} \cong \overline{MQ}$$

(also $PM = MQ$)

Segment Bisector: A segment bisector is a point / line / ray that intersects the segment at its midpoint.

↑
noun



line l is a seg. bisector

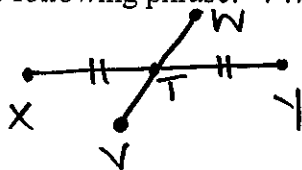
$\overrightarrow{ST}$ is a seg. bisector

bisect: divide into 2 equal or $\cong$ parts

↑
verb

Examples:

1. Make a sketch of the following phrase: " $\overline{VW}$ bisects $\overline{XY}$ at point T."



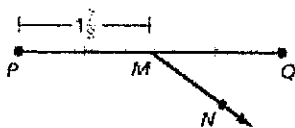
2.

$$XT = 40$$

$$XY = ?$$

$$XY = 40 + 40 = \boxed{80}$$

3. Identify the segment bisector of $\overline{PQ}$. Then find PQ.



$\overline{MN}$ ~~point M~~

$$PQ = 3\frac{3}{4}$$

$\overline{MN}$ ($\overline{NM}$)

Using Algebra with Segment Lengths

Example: 4. Point M is the midpoint of $\overline{VW}$. Find the length of $\overline{VM}$.



$$\overline{VW} = \overline{VM} + \overline{MW}$$

$$y = 4x - 1 + 3x + 3$$

$$VM = MW$$

$$4x - 1 = 3x + 3$$

$$x = 4$$

$$\boxed{VM = 15}$$