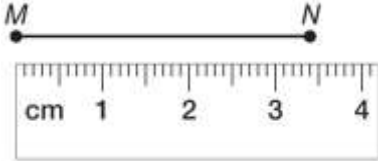


1-2 Study Guide and Intervention

Linear Measure

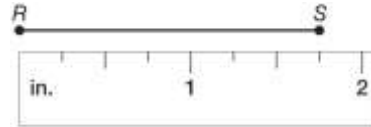
Measure Line Segments A part of a line between two endpoints is called a **line segment**. The lengths of \overline{MN} and \overline{RS} are written as MN and RS . All measurements are approximations dependent upon the smallest unit of measure available on the measuring instrument.

Example 1: Find the length of \overline{MN} .



The long marks are centimeters, and the shorter marks are millimeters. There are 10 millimeters for each centimeter. The length of \overline{MN} is about 34 millimeters.

Example 2: Find the length of \overline{RS} .

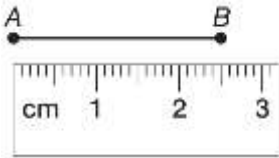


The long marks are inches and the short marks are quarter inches. Point S is closer to the $1 \frac{3}{4}$ inch mark. The length of RS is about $1 \frac{3}{4}$ inches.

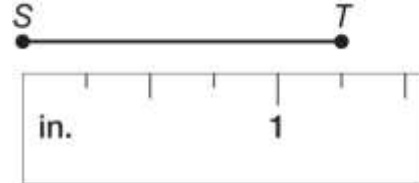
Exercises

Find the length of each line segment or object.

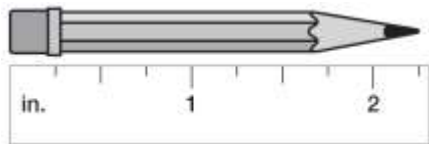
1.



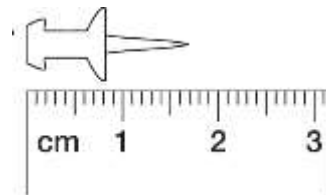
2.



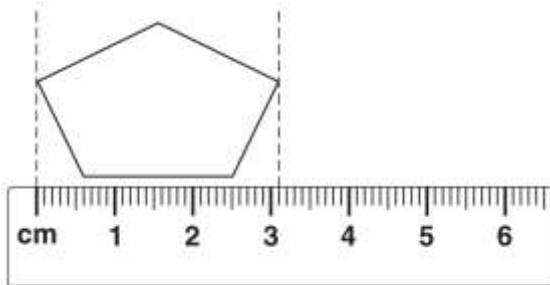
3.



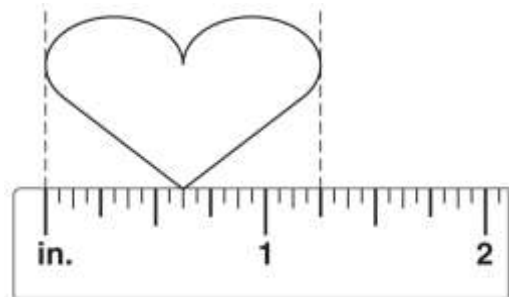
4.



5.



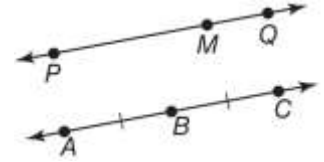
6.



1-2 Study Guide and Intervention *(continued)*

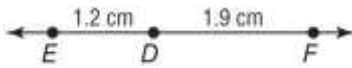
Linear Measure

Calculate Measures On \overleftrightarrow{PQ} , to say that point M is between points P and Q means P , Q , and M are collinear and $PM + MQ = PQ$.



On \overleftrightarrow{AC} , $AB = BC = 3$ cm. We can say that the segments are **congruent segments**, or $\overline{AB} \cong \overline{BC}$. Slashes on the figure indicate which segments are congruent.

Example 1: Find EF .

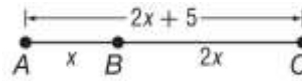


Point D is between E and F . Calculate EF by adding ED and DF .

$$\begin{aligned} ED + DF &= EF && \text{Betweenness of points} \\ 1.2 + 1.9 &= EF && \text{Substitution} \\ 3.1 &= EF && \text{Simplify.} \end{aligned}$$

Therefore, \overline{EF} is 3.1 centimeters long.

Example 2: Find x and AC .



B is between A and C .

$$\begin{aligned} AB + BC &= AC \\ x + 2x &= 2x + 5 \\ 3x &= 2x + 5 \\ x &= 5 \end{aligned}$$

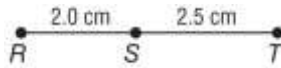
Betweenness of points
Substitution
Add $x + 2x$.
Simplify.

$$AC = 2x + 5 = 2(5) + 5 = 15$$

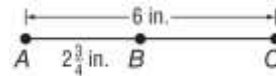
Exercises

Find the measurement of each segment. Assume that each figure is not drawn to scale.

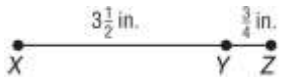
1. \overline{RT}



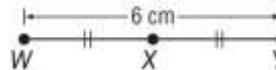
2. \overline{BC}



3. \overline{XZ}



4. \overline{WX}



ALGEBRA Find the value of x and RS if S is between R and T .

5. $RS = 5x$, $ST = 3x$, and $RT = 48$

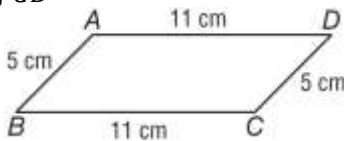
6. $RS = 2x$, $ST = 5x + 4$, and $RT = 32$

7. $RS = 6x$, $ST = 12$, and $RT = 72$

8. $RS = 4x$, $ST = 4x$, and $RT = 24$

Determine whether each pair of segments is congruent.

9. \overline{AB} , \overline{CD}



10. \overline{XY} , \overline{YZ}

