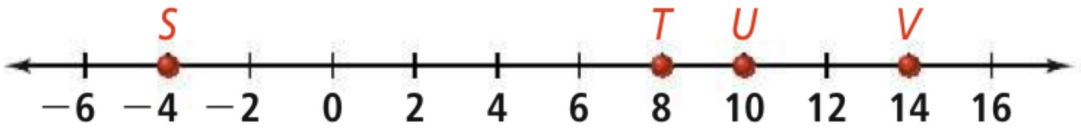
Measuring Segments

Goal: To find and compare lengths of segments.

Note: The length of $\overline{AB}$ is denoted as AB.

Ex 1) Use the number line provided to answer the following questions.



A) What is ST?

B) What is UV?

C) What is SV?

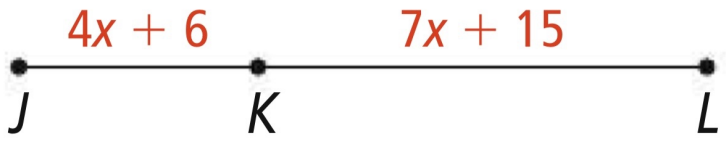
Postulate 1-6:

If three points, A, B, and C are collinear and B is between A and C, then:

$$AB + BC = AC$$

Ex 2a) If EG = 59, what are EF and FG?

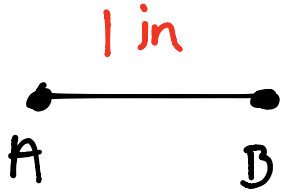
Ex 2b) If JL = 120, what are JK and KL?



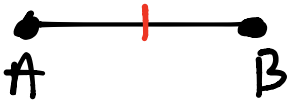
Note: When numerical expressions have the same value, they are equal (=). If two segments have the same length, then they are congruent (≅).

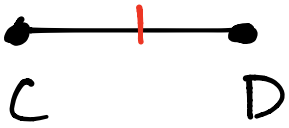
This means that if $AB = CD$, then $\overline{AB} \cong \overline{CD}$.

If...



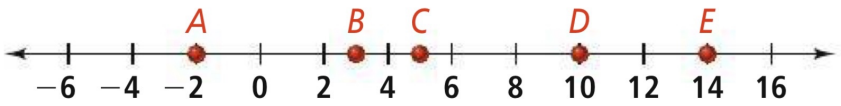
Then...





$AB = CD \rightarrow \overline{AB} \cong \overline{CD}$

Ex 3) Use the number line provided to answer the following questions.

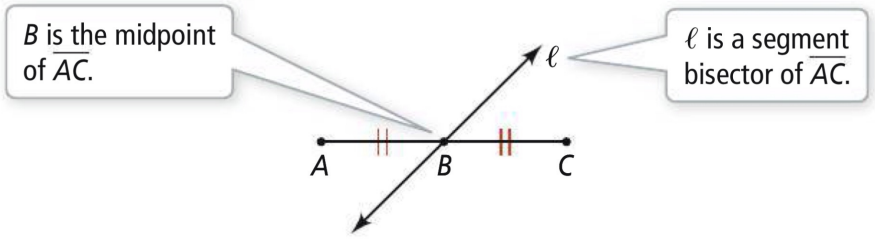


A) Are $\overline{AC}$ and $\overline{BD}$ congruent?

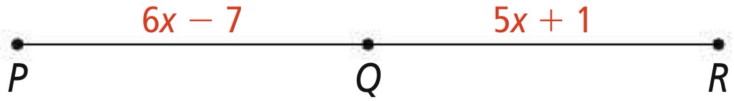
B) Are $\overline{AB}$ and $\overline{DE}$ congruent?

Def: The midpoint of a segment is a point that divides the segment into two congruent segments.

Def: A point, line, ray, or other segment that intersects a segment at its midpoint is said to bisect the segment. The point, line, ray, or intersecting segment is called the segment bisector.

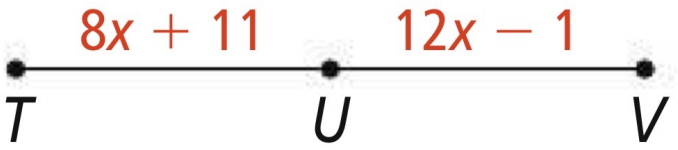


Ex 4a) Q is the midpoint of $\overline{PR}$. What are PQ, QR, and PR?



Ex 4b) Is it necessary to substitute 8 in for x in the expression for $\overline{QR}$ in order to find QR?

Ex 4c) U is the midpoint of $\overline{TV}$. What are TU, UV, and TV?

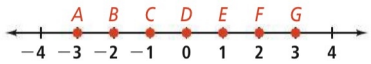


Lesson Check:

Lesson Check

Do you know HOW?

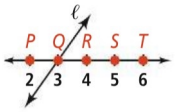
Name each of the following.



1. The point on $\overrightarrow{DA}$ that is 2 units from D
2. Two points that are 3 units from D
3. The coordinate of the midpoint of $\overline{AG}$
4. A segment congruent to $\overline{AC}$

Do you UNDERSTAND? MATHEMATICAL PRACTICES

5. **Vocabulary** Name two segment bisectors of $\overline{PR}$.



6. **Compare and Contrast** Describe the difference between saying that two segments are *congruent* and saying that two segments have *equal length*. When would you use each phrase?
7. **Error Analysis** You and your friend live 5 mi apart. He says that it is 5 mi from his house to your house and −5 mi from your house to his house. What is the error in his argument?

HOMEWORK:

Textbook p. 24-25

#12,14,18-20, 28-29, 36, 39, 43

(10 problems)