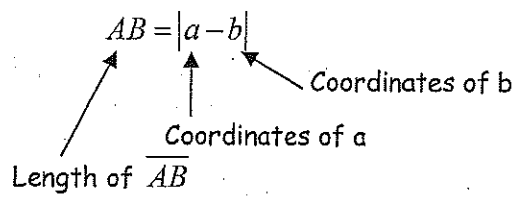


The distance between points C and D on the ruler is 3. You can use the Ruler Postulate to find the distance between points on a number line.

Ruler Postulate:

The distance between any two points is the absolute value of the differences of the corresponding numbers.

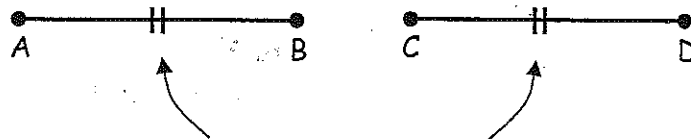


$$CD = |3 - 7| = |-4|$$

$$CD = 4$$

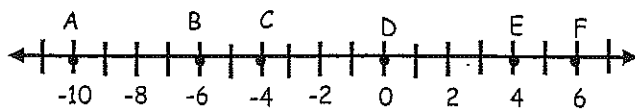
$$AB = CD \rightarrow \overline{AB} \cong \overline{CD}$$

Congruence symbol



Matching marks therefore congruent

Comparing Segment Lengths:

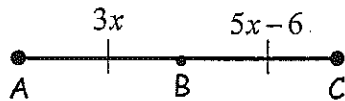
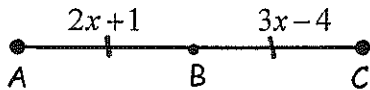
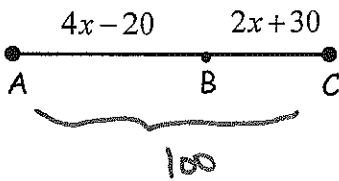
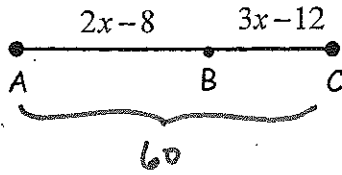
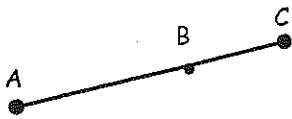


$$AB = |-10 - (-6)| = |-4| = 4$$

$$CD = |-4 - 0| = |-4| = 4$$

$$AB = CD \text{ so } \overline{AB} \cong \overline{CD}$$

Compare CD and DE, are the segments congruent?



Segment Addition Postulate:

If three points, A, B, and C are collinear and B is between A and C then  $AB + BC = AC$

If  $AC=60$ , find the value of  $x$ , then find AB and BC.

$$AB + BC = AC$$

$$2x - 8 + 3x - 12 = 60$$

$$5x - 20 = 60$$

$$\begin{array}{r} 5x = 80 \\ \div 5 \\ \hline x = 16 \end{array}$$

$$AB = 2(16) - 8 = 24$$

$$BC = 3(16) - 12 = 36$$

If  $AC=100$ , find the value of  $x$ , then find AB and BC.

$$4x - 20 + 2x + 30 = 100$$

$$6x + 10 = 100$$

$$\begin{array}{r} 6x = 90 \\ \div 6 \\ \hline x = 15 \end{array}$$

Midpoint:

The midpoint of a segment is a point that divides the segment into two congruent segments. A midpoint, or any line, ray or other segment through a midpoint, is said to *bisect* the segment.

B is the midpoint of  $\overline{AC}$ . Find AB, BC, and AC.

$$AB = BC$$

$$\begin{array}{r} 2x + 1 = 3x - 4 \\ -2x \quad -2x \\ \hline 1 = x - 4 \end{array}$$

$$\begin{array}{r} 1 = x - 4 \\ +4 \quad +4 \\ \hline 5 = x \end{array}$$

Find  $x$ , then AB, BC, and AC.