Name_____ Date _____

1.2 Measuring and Constructing Segments

For use with Exploration 1.2

Essential Question How can you measure and construct a line segment?

1 EXPLORATION: Measuring Line Segments Using Nonstandard Units

Work with a partner.

22.14 mile chain record!

a. How long of a paperclip chain can you make in 30 seconds? Find the length in clips.

My Record: _____ Clips

b. Find the length of your chain in inches. Chain length = _____in.

c. Write conversion factors from paper clips to inches and vice versa.

1 paper clip = ____ in.

1 in. = ____ paper clip

Notetaking with Vocabulary

For use after Lesson 1.2

In your own words, write the meaning of each vocabulary term.

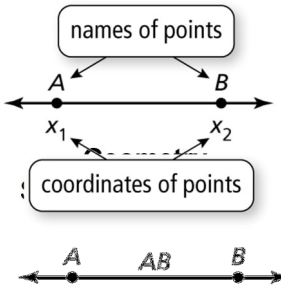
Postulate – *a statement that is* _____ *to be true.*

Axiom – *Another word for Postulate*

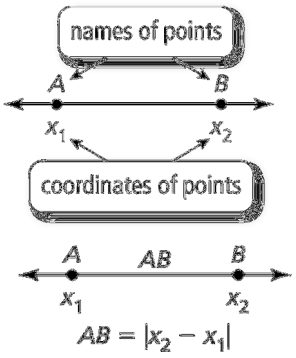
Coordinate - *number(s) that* _____

Distance -

congruent segments – *segments that are* _____



Postulate 1.1 Ruler Postulate



The points on a line can be matched one to one with the real numbers. The real number that corresponds to a point is the **coordinate** of the point.

The **distance** between points A and B, written as AB, is the absolute value of the difference of the coordinates of A and B.

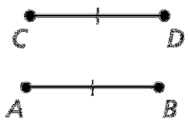
Example:

Find the distance between -5 and 23 on a number line.

Core Concepts

Congruent Segments

Line segments that have the same length are called **congruent segments**. You can say "the length of $\overline{AB}$ is equal to the length of $\overline{CD}$," or you can say "$\overline{AB}$ *is congruent to* $\overline{CD}$." The symbol $\cong$ means "is congruent to."



Lengths are equal.

$AB = CD$

"is equal to"

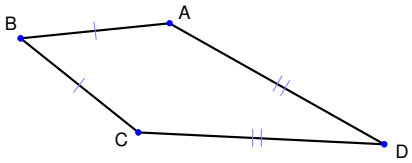
Segments are congruent.

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

"is congruent to"

Example:

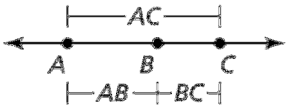
Write a congruence statement for each pair of congruent segments in the drawing:



Postulate 1.2 Segment Addition Postulate

If B is between A and C, then $AB + BC = AC$.

If $AB + BC = AC$, then B is between A and C.



Example:

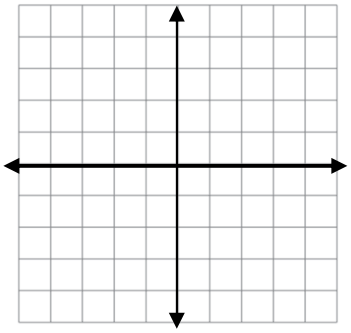
Point B is between A and C on $\overline{AC}$. Use the information to write an equation in terms of x. Then solve the equation and find AB, BC, and AC.

$$AB = 5x + 3, \qquad BC = 2x + 5, \qquad AC = 6x + 12$$

Extra Practice

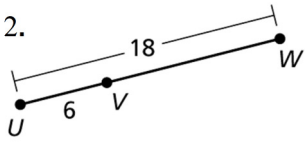
In Exercises 1–2, plot the points in the coordinate plane. Then determine whether $\overline{AB}$ and $\overline{CD}$ are congruent.

1. $A(-5, 5)$, $B(-2, 5)$
$C(2, -4)$, $D(-1, -4)$

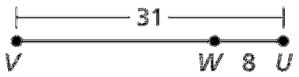


In Exercises 2–3, write an equation to find VW.

2.



3.



4. A bookstore and a movie theater are 6 kilometers apart along the same street. A florist is located between the bookstore and the theater on the same street. The florist is 2.5 kilometers from the theater. How far is the florist from the bookstore?