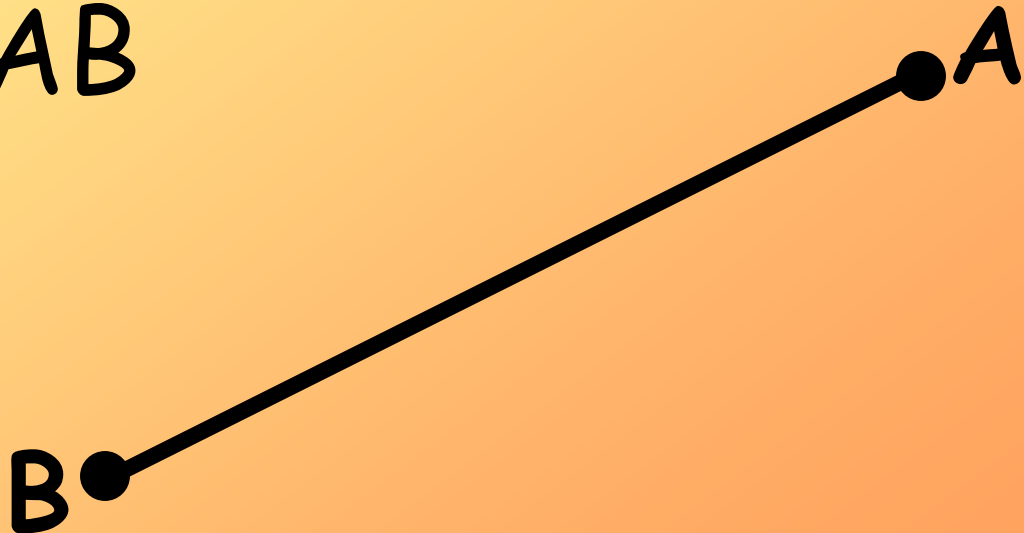# Section 1-3

Segments, Rays, and Distance

Segment: <u>part of a line with two endpoints</u>.

Segment AB contains points A and B and the set of all points between A and B.
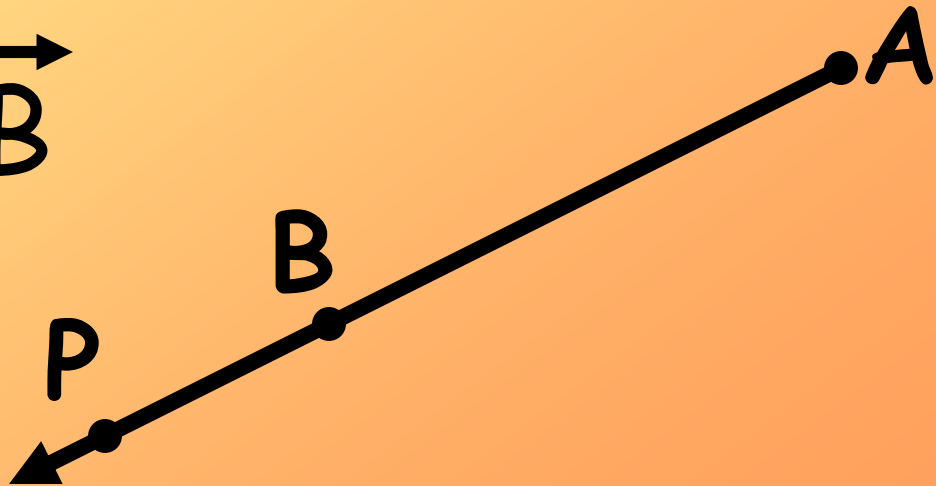
Notation: $\overline{AB}$

Ray: <u>parts of a line with one endpoint and continues on forever in one direction.</u>

Ray AB contains $\overline{AB}$ and all other points P such that B is between A and P.

Notation: $\overrightarrow{AB}$

Opposite Rays: <u>rays that share an endpoint but extend in opposite directions.</u>

Example: $\overrightarrow{SR}$ and $\overrightarrow{ST}$ are called Opposite Rays if S is between R and T.

R ←————————————— S ————————————→ T

Length: <u>the distance between two endpoints of a line segment</u>

Notation: AB

Example: AB = 5 inches

A •————————————————————• B
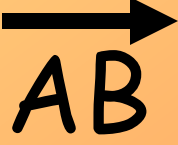   **5in**

Can you find the <u>length of a line</u>? No!
Can you find the <u>length of a ray</u>? No!

Notice the difference in notation for each...

	Notation
Line AB	$\overleftrightarrow{AB}$
Segment AB	$\overline{AB}$
Ray AB	$\overrightarrow{AB}$
The length of AB	AB

The order of the letters only matters for the <u>RAY</u>.

Congruent: <u>two objects that have the same size and shape.</u>

NOTATION ALERT!
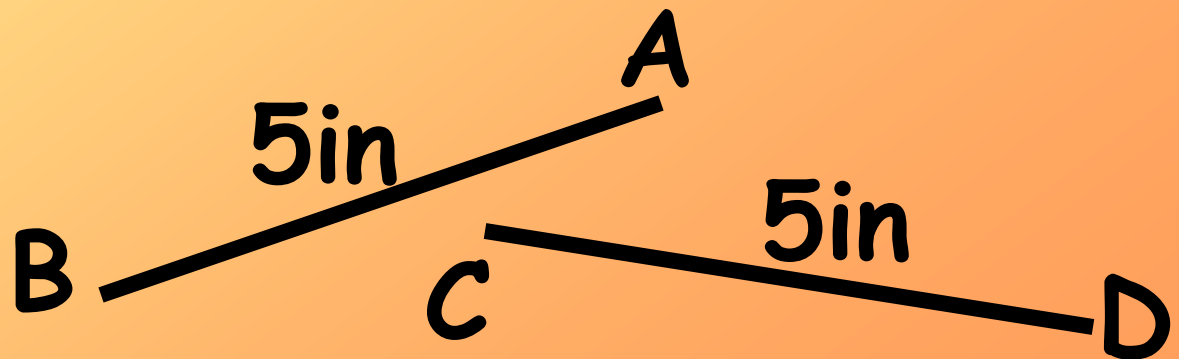
<u>$\cong$ is ONLY used when describing FIGURES.</u>

<u>= is used when describing NUMBERS or length.</u>

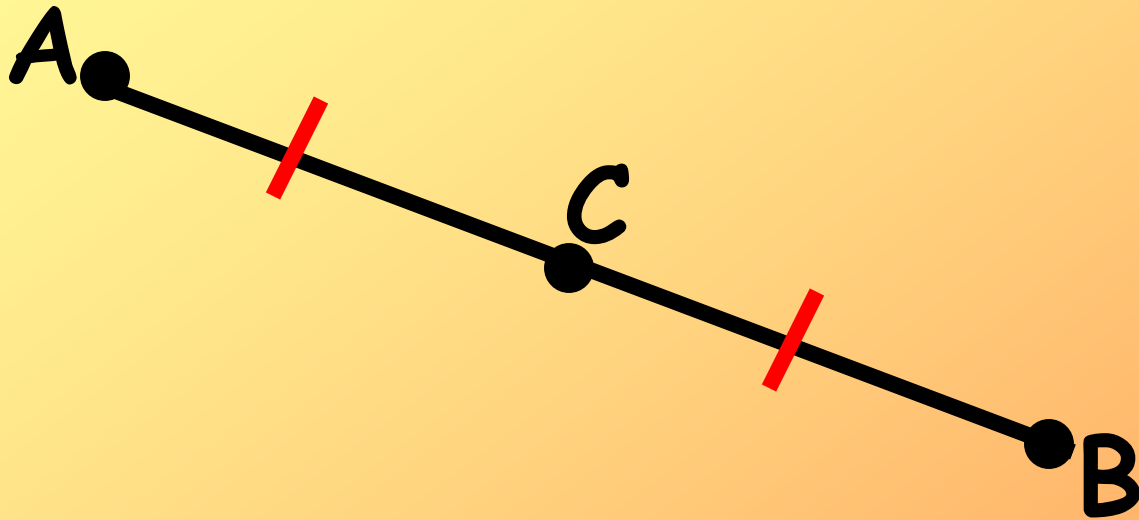Symbol: $\cong$

Example: Congruent segments have equal lengths.

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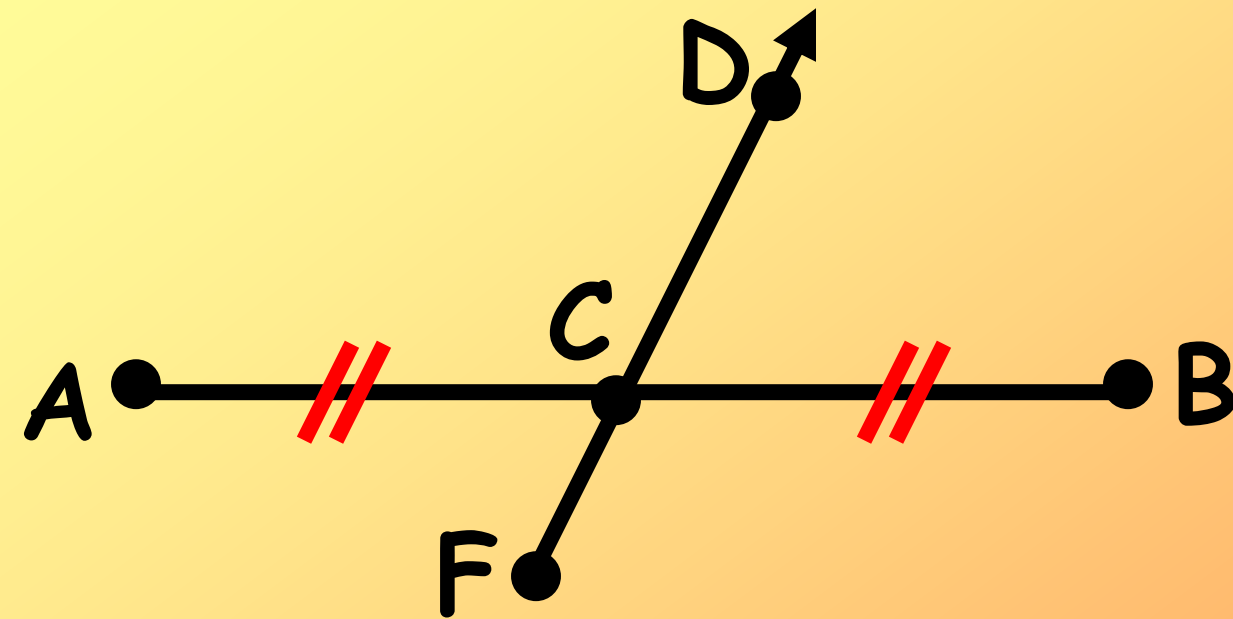
$AB = CD$

5in

5in

A

B

C

D

Midpoint of a Segment

Midpoint of a Segment: <u>a point that divides a segment into two congruent segments.</u>

<u>If C is the midpoint of $\overline{AB}$, then $\overline{AC} \cong \overline{CB}$.</u>

Segment Bisector: <u>a line, segment, ray, or plane that intersects a segment its midpoint.</u>

Watch Out: A segment bisector cannot be a <u>point</u>!

$\overrightarrow{FD}$ is the <u>bisector of $\overline{AB}$</u>.

C is the <u>midpoint of $\overline{AB}$</u>.

Postulate – <u>A postulate is a statement accepted without proof.</u>

Segment Addition Postulate:
If B is between A and C, then <u>AB + BC = AC</u>.

Ex. If AB = 10 inches and BC = 8 inches, then AC = <u>18 inches.</u>

Textbooks

Turn to page 15

Numbers 1-4, 31-32