Warm Up

Take out your placemat and discuss it with your neighbor.

Unit 7

CONGRUENCE AND SIMILARITY PART I

Postulate

-A statement we take to be true without proof.

Theorem

-A statement that can be proven true.

Congruent Segments

-Segments which have equal lengths

$\overline{AB} \cong \overline{DE}$	Given
$m\overline{AB} = m\overline{DE}$	def of $\cong$

Midpoint

-point that divides a segment into two congruent segments

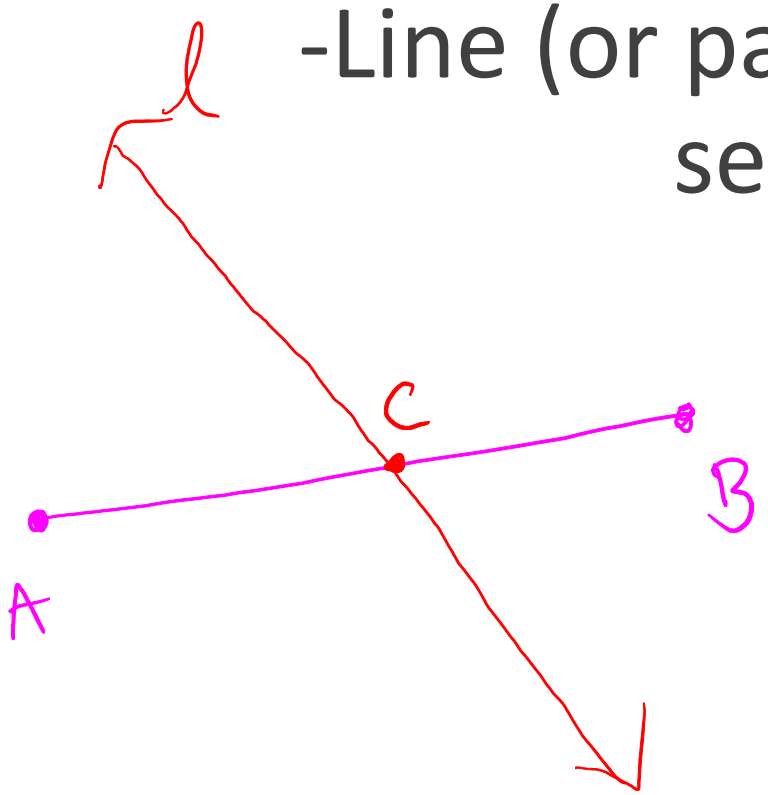
B is midpt of AC

$\overline{AB} \cong \overline{BC}$ | b/c def of midpt

$m\overline{AB} = m\overline{BC}$ | def of $\cong$

Segment Bisector

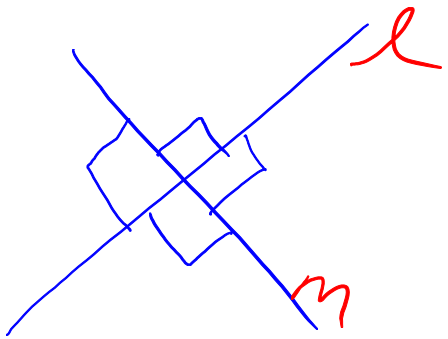
-Line (or part of a line) that intersects the segment at its midpoint



l is seg bisect of $\overline{AB}$	given
C is midpt of AB	def of seg bisect
$\overline{AC} \cong \overline{CB}$	def of midpt
$m\overline{AC} = m\overline{CB}$	def of $\cong$

Perpendicular Lines

-Lines that intersect to form a right angle



$l \perp m$

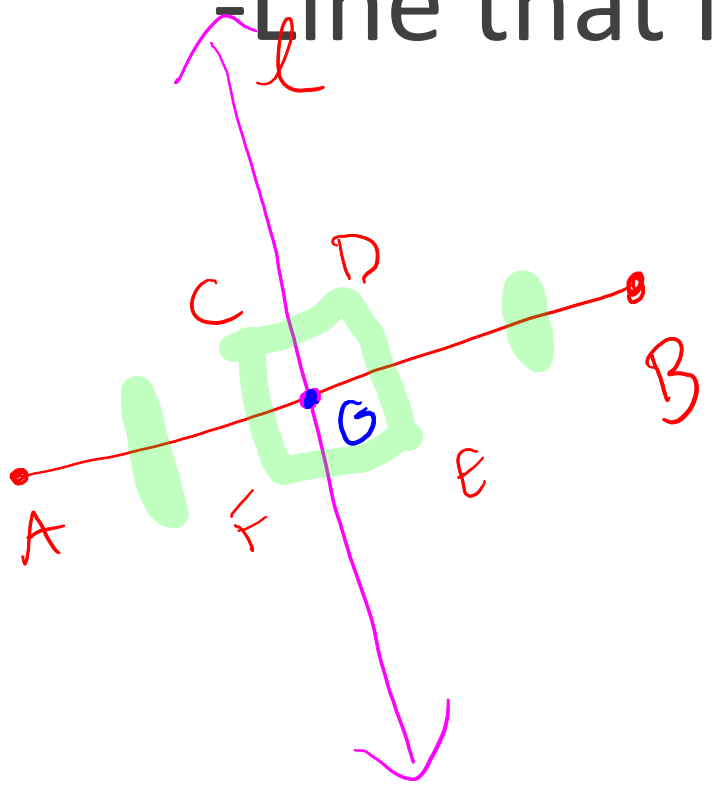
Symbol: $\perp$

$\angle A$ is right $\angle$	given
$m\angle A = 90°$	def of right $\angle$

$l \perp m$	given
$\angle A, \angle B, \angle C, \angle D$ are right $\angle$'s	def of $\perp$
$m\angle A = 90°$	def of right $\angle$

Perpendicular Bisector

-Line that is perpendicular to a segment at its midpoint



ℓ is ⊥ bisect to $\overline{AB}$	given
∠C, ∠D, ∠E, ∠F are right ∠s	def of ⊥
G is midpt of $\overline{AB}$	Def of bisect

Congruent Angles

-Angles which have equal measures

$\angle$ angle

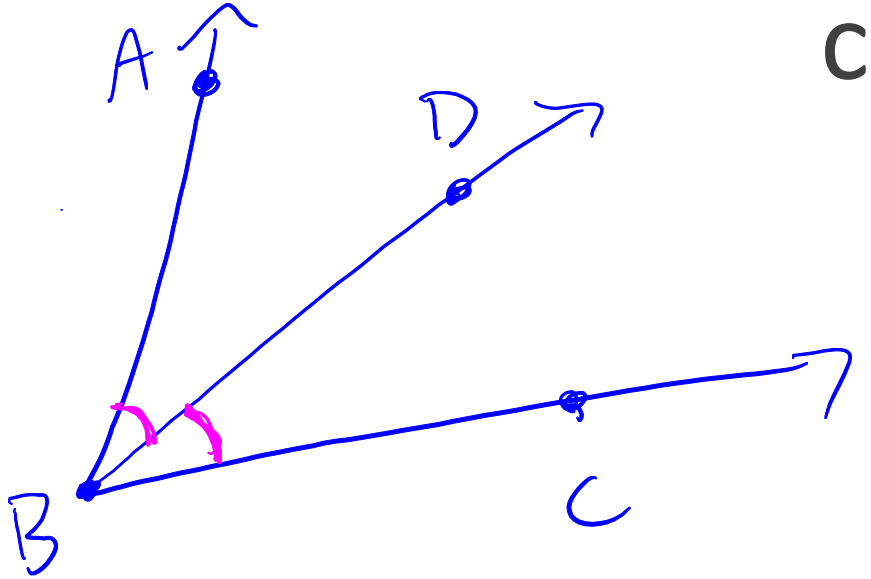
$<$ less than

Symbols:

$\angle A \cong \angle B$	Given
$m\angle A = m\angle B$	def of $\cong$

Angle Bisector:

-Ray that divides an angle into two congruent angles



$\overline{BD}$ bisects $\angle ABC$	given
$\angle ABD \cong \angle CBD$	def of bisect
$m\angle ABD = m\angle CBD$	def of $\cong$

Complementary Angles:

-Two angles whose measures sum to 90°

Note: The two angles *do not* have to be adjacent!!

$\angle A, \angle B$ are comp	given
$m\angle A + m\angle B = 90°$	def of comp $\angle$'s

Supplementary Angles

-Two angles whose measures sum to 180°
(make a straight line)

∠A∠B are supp	given
m∠A+m∠B =180°	def of supp ∠'s

Note: Again, the two angles *do not* have to be adjacent!!

Linear Pair

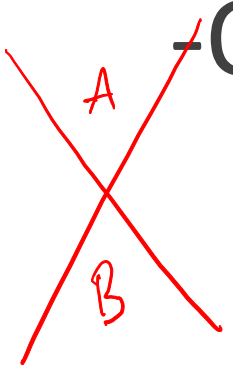
-Two adjacent angles whose non-common sides are opposite rays

*Linear Pair Postulate:

Linear Pairs are supplementary

$\angle A, \angle B$ are lin pair	def of lin pair diagram
$\angle A, \angle B$ are supplementary	LPP lin pair post
$m\angle A + m\angle B = 180°$	def of supp

Vertical Angles



-Opposite (non-adjacent) angles formed by two intersecting lines

congruence

*Vertical Angle Theorem:

All vertical angles are congruent

$\angle A$, $\angle B$ are vert $\angle$'s	def of vert $\angle$ or diagram
$\angle A \cong \angle B$	Vert $\angle$ thm
$m\angle A = m\angle B$	def of $\cong$

Right Angles

-Angle whose measure equals 90°

$\angle A, \angle B$ are right $\angle$s	given
$\angle A \cong \angle B$	right $\angle$ $\cong$ thm

*Right Angle Congruence Theorem:

All right angles are congruent

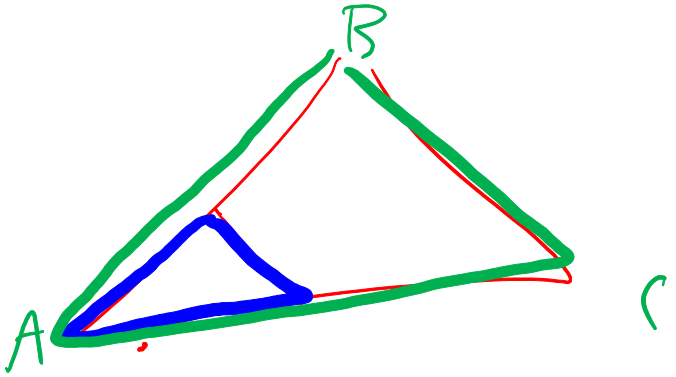
Right Triangle

-Triangle that contains a right angle

Reflexive Property of congruence

-A geometric figure is congruent to itself

$\angle A \cong \angle A$	reflex prop of $\cong$



Transitive Property of Congruence

If $\angle A \cong \angle B$ and $\angle B \cong \angle C$, then $\angle A \cong \angle C$.

In words:

If two things are congruent to the same thing, then they are congruent to each other.

$A \cong B$ $C \cong B$ then $A \cong C$