

Theorems of Segment and Angle Congruence // More Flow Chart Proofs

Lesson Objective

INBAT complete flow chart proofs

Theorem: A theorem is a statement that can be proven.

→ Once you have proven a theorem, you can use it as a reason in other proofs.

Property of Segment Congruence	Explanation
Reflexive	for any segment AB , $\overline{AB} \cong \overline{AB}$
Symmetric	if $\overline{AB} \cong \overline{CD}$, then $\overline{CD} \cong \overline{AB}$
Transitive	if $\overline{AB} \cong \overline{CD}$ and $\overline{CD} \cong \overline{EF}$, then $\overline{AB} \cong \overline{EF}$

Property of Angle Congruence	Explanation
Reflexive	for any angle A , $\angle A \cong \angle A$
Symmetric	if $\angle A \cong \angle B$, then $\angle B \cong \angle A$
Transitive	if $\angle A \cong \angle B$ and $\angle B \cong \angle C$, then $\angle A \cong \angle C$

Example

1. Prove the Symmetric Property of Congruence.

Given $\overline{LM} \cong \overline{NP}$ Prove $\overline{NP} \cong \overline{LM}$ 

Provide reasons for all statements given in the flow chart!

$$\overline{LM} \cong \overline{NP}$$

given

$$LM = NP$$

if segs $\cong \rightarrow$ segs =

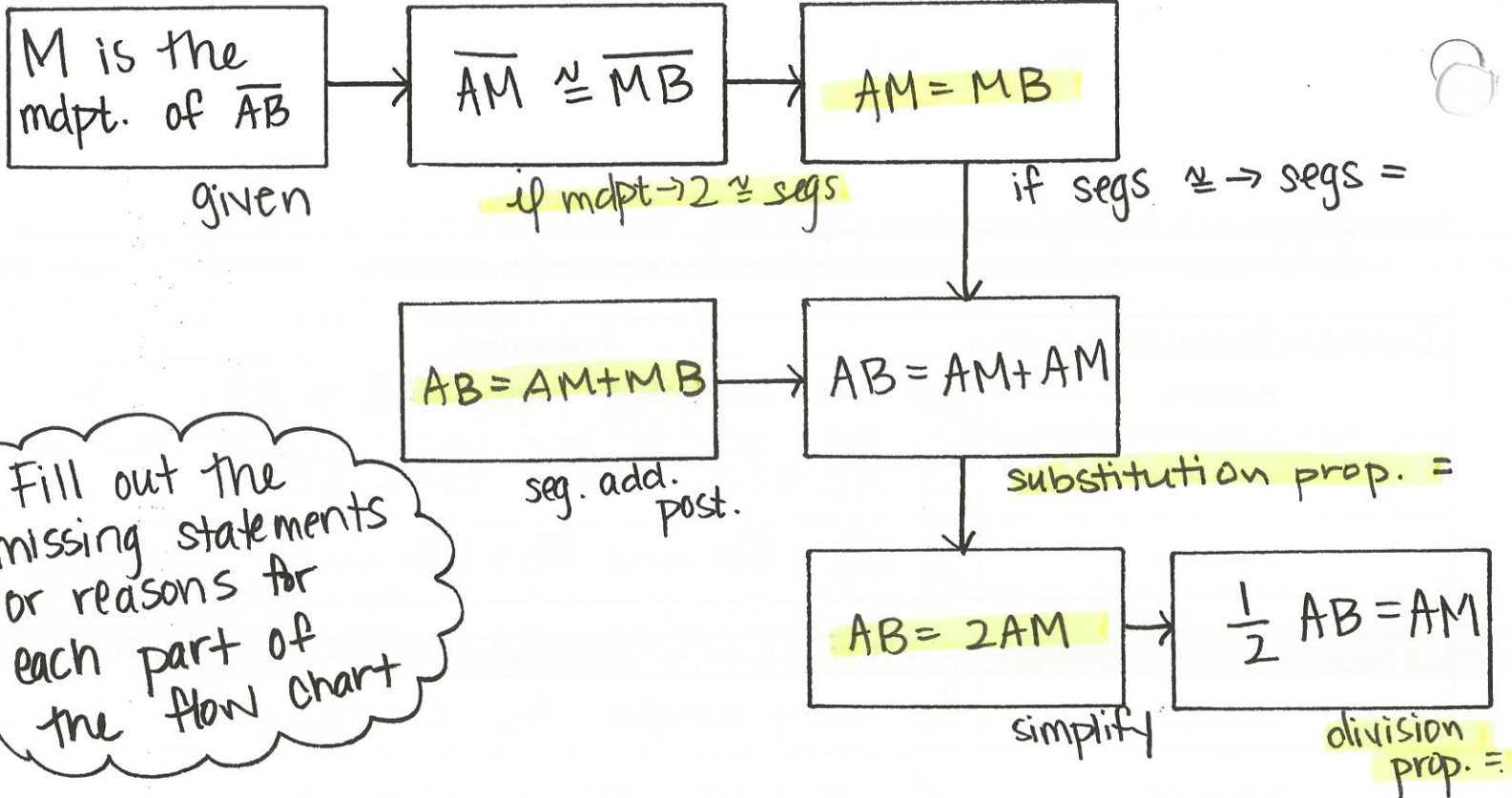
$$NP = LM$$

symm. prop. =

$$\overline{NP} \cong \overline{LM}$$

if segs = $\rightarrow$ segs $\cong$

2. Prove this property of midpoints: If you know that M is the midpoint of $\overline{AB}$, prove that AM is one-half the length of AB.



3. Given $\angle 1$ is a complement of $\angle 2$.
 $\angle 2 \cong \angle 3$

Prove $\angle 1$ is a complement of $\angle 3$.

