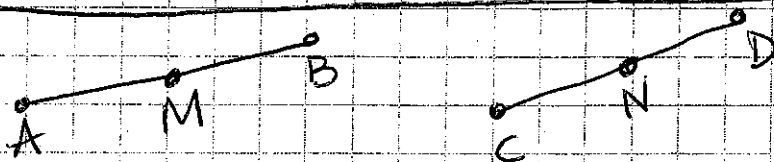


## Multiplication Property

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If segments (or angles) are  $\cong$ , then multiples are  $\cong$ .



Given:  $\overline{AM} \cong \overline{CN}$

M is midpoint of  $\overline{AB}$

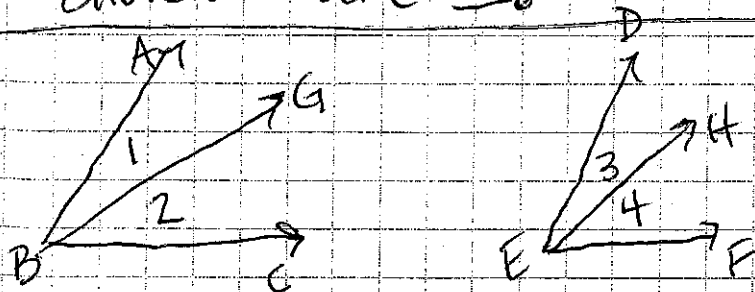
N is midpoint of  $\overline{CD}$

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

b/c of mult. prop.

## Division Property

If segments (or angles) are  $\cong$ , then the divisions are  $\cong$ .



Given:  $\overrightarrow{BG}$  bisects  $\angle ABC$

$\overrightarrow{EH}$  bisects  $\angle DEF$

$\angle ABC \cong \angle DEF$

$\angle 1 \cong \angle 3$

b/c division property.

# Transitive Property

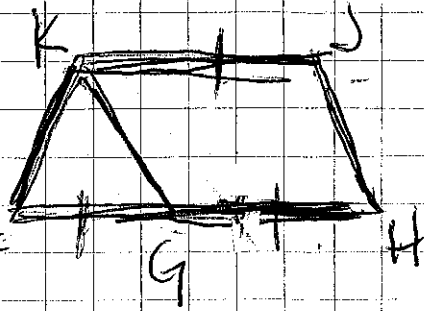
(special case of substitution)

If 2 segments (or angles) are  $\cong$  to the same segment, then they are  $\cong$  to each other.

$$a = b \quad b = c \quad a = c$$

Proof

Given:  $\overline{FG} \cong \overline{KJ}$   
 $\overline{GH} \cong \overline{KJ}$



Prove:  $\overline{KG}$  bis.  $\overline{FH}$

Reasons

st.	Reasons
① $\overline{FG} \cong \overline{KJ}$ $\overline{GH} \cong \overline{KJ}$	① Given <sup>OR substitution</sup>
② $\overline{FG} \cong \overline{GH}$	② Transitive Property
③ $\overline{KG}$ bis. $\overline{FH}$	③ Def of bisector