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Date \_\_\_\_\_  
Geometry



## Addition and Subtraction Property Mini Proofs

1. Given:  $\overline{AB} \cong \overline{CD}$

Prove:  $\triangle AXC \cong \triangle BYD$

statements	Reasons
① $\overline{AB} \cong \overline{CD}$	① given
② $\overline{BC} \cong \overline{BC}$	② reflexive property
③ $\overline{AC} \cong \overline{BD}$	③ Addition Property

$$\overline{AB} + \overline{BC} = \overline{CD} + \overline{BC}$$

2. Given:  $\overline{AC} \cong \overline{BD}$

Prove:  $\triangle AXB \cong \triangle DYC$

statements	Reasons
① $\overline{AC} \cong \overline{BD}$	① given
② $\overline{BC} \cong \overline{BC}$	② reflexive property
③ $\overline{AB} \cong \overline{CD}$ or	③ subtraction property

$$\overline{AC} - \overline{BC} = \overline{BD} - \overline{BC}$$

3. Given:  $\angle EIN \cong \angle HIC$

Prove:  $\triangle EIC \cong \triangle HIN$

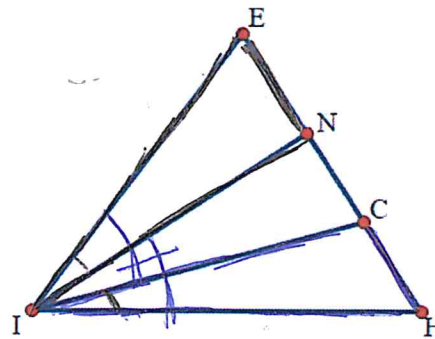
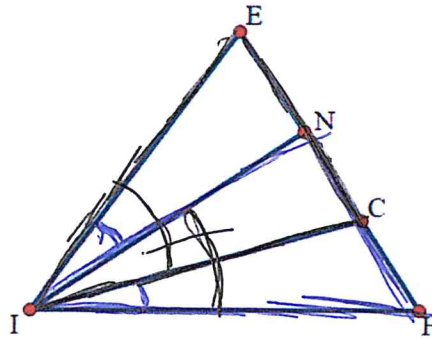
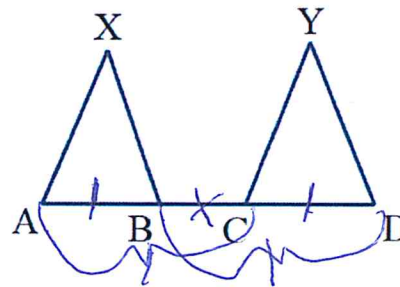
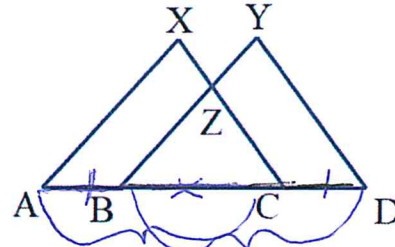
statements	Reasons
① $\angle EIN \cong \angle HIC$	① given
② $\angle NIC \cong \angle NIC$	② reflexive property
③ $\angle EIC \cong \angle NIH$ or	③ addition property

$$\angle EIN + \angle NIC = \angle HIC + \angle NIC$$

4. Given:  $\angle EIC \cong \angle HIN$

Prove:  $\triangle EIN \cong \triangle HIC$

statements	Reasons
① $\angle EIC \cong \angle HIN$	① given
② $\angle NIC \cong \angle NIC$	② reflexive property
③ $\angle EIN \cong \angle HIC$ or	③ subtraction property

$$\angle EIC - \angle NIC = \angle HIN - \angle NIC$$


5. Given:  $\angle TLA \cong \angle TYO$ ,  $\angle ALY \cong \angle OYL$

Prove:  $\triangle OLY \cong \triangle AYL$

Statements	Reasons
① $\angle TLA \cong \angle TYO$	① given
② $\angle ALY \cong \angle OYL$	② given
③ $\angle OLY \cong \angle AYL$	③ addition property
$\angle TLA + \angle ALY \cong \angle TYO + \angle OYL$	

6. Given:  $\overline{MN} \cong \overline{NE}$ ,  $\overline{ON} \cong \overline{KE}$

Prove:  $\triangle MOE \cong \triangle NKM$

Statements	Reasons
① $\overline{MN} \cong \overline{NE}$	① given
② $\overline{ON} \cong \overline{KE}$	② given
③ $\overline{MO} \cong \overline{KN}$ or $\overline{MN} - \overline{ON} = \overline{NE} - \overline{KE}$	③ subtraction property

7. Given:  $\overline{UL} \cong \overline{TE}$

Prove:  $\triangle CUT \cong \triangle REL$

Statements	Reasons
① $\overline{UL} \cong \overline{TE}$	① given
② $\overline{TL} \cong \overline{TL}$	② reflexive property
③ $\overline{UT} \cong \overline{LE}$	③ subtraction property
$\overline{UL} - \overline{TL} \cong \overline{TE} - \overline{TL}$	

8. Given:  $\overline{WN} \cong \overline{RE}$

Prove:  $\triangle WOR \cong \triangle NVE$

Statements	Reasons
① $\overline{WN} \cong \overline{RE}$	① given
② $\overline{NR} \cong \overline{NR}$	② reflexive property
③ $\overline{WR} \cong \overline{NE}$ or $\overline{WN} + \overline{NR} = \overline{NR} + \overline{RE}$	③ Addition Property

