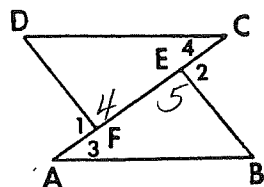


Overlapping Triangles - Worksheet B

Write a flow proof for each problem.

1.

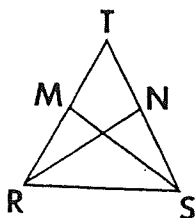


Given: \overleftrightarrow{AC} , $\overline{AF} \cong \overline{EC}$, $\angle 3 \cong \angle 4$, $\angle 1 \cong \angle 2$.
 Prove: $\triangle ABE \cong \triangle CDF$.

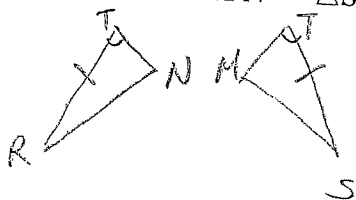
- ① $\angle 1$ & $\angle 4$ linear pair \rightarrow ② $\angle 1$ supp $\angle 4$
 $\angle 2$ & $\angle 5$ linear pair \rightarrow ③ $\angle 2$ supp $\angle 5$
 ④ $\angle 1 \cong \angle 2$ } \rightarrow ⑤ $\angle 4 \cong \angle 5$
 ⑥ $\angle 3 \cong \angle 4$
 ⑦ $\overline{AF} \cong \overline{EC} \rightarrow$ ⑧ $\overline{AE} \cong \overline{FC}$ } ⑨ $\triangle ABE \cong \triangle CDF$

- ① Def linear pair
 ② linear pair: \angle s are supp.
 ③ same as #2
 ④ Given
 ⑤ \cong supplements thm
 ⑥ Given
 ⑦ Given
 ⑧ Common segment thm
 ⑨ ASA \cong ASA

2.



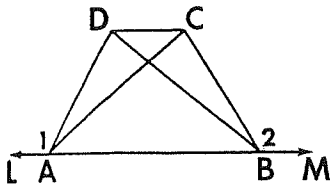
Given: $\overline{TR} \cong \overline{TS}$, $\overline{MR} \cong \overline{NS}$.
 Prove: $\triangle RTN \cong \triangle STM$.



- ① $\overline{TR} \cong \overline{TS} \rightarrow$ ② $TR = TS$
 ③ $TR = TM + MR$
 ④ $TS = TN + NS$ } \rightarrow ⑤ $TM + MR = TN + NS$
 ⑥ $\overline{MR} \cong \overline{NS} \rightarrow$ ⑦ $MR = NS$ } ⑧ $TM = TN$
 ⑨ $TR = TS$
 ⑩ $\angle T \cong \angle T$

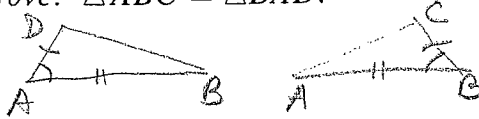
- ① Given
 ② Def \cong segmts
 ③ Segment Addition Postulate
 ④ same as 3
 ⑤ Substitution
 ⑥ Given
 ⑦ Def \cong segmts
 ⑧ Subtraction Prop.
 ⑨ Given
 ⑩ Reflexive Prop
 ⑪ SAS \cong SAS
 ⑫ $\triangle RTN \cong \triangle STM$

3.



Given: $\vec{LM}, \overline{CB} \cong \overline{DA}, \angle 2 \cong \angle 1$.

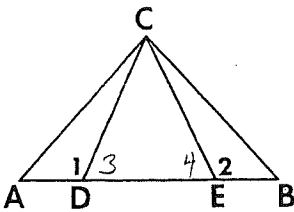
Prove: $\triangle ABC \cong \triangle BAD$.



- ① $\angle 2$ & $\angle 1$ linear pair \rightarrow ② $\angle 2$ supp $\angle 1$
 $\angle 1$ & $\angle 2$ linear pair \rightarrow ③ $\angle 1$ supp $\angle 2$ } \rightarrow ⑤ $\angle CBA \cong \angle DAL$
 ④ $\angle 2 \cong \angle 1$ } \rightarrow ⑧ $\triangle ABC \cong \triangle BAD$
 ⑥ $\overline{CB} \cong \overline{DA}$
 ⑦ $\overline{AB} \cong \overline{AB}$

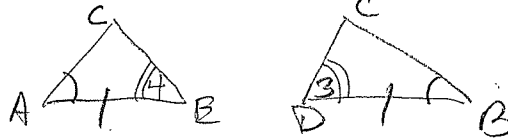
- ① Def. linear pair
 ② linear pair: supp.
 ③ same as #2
 ④ Given
 ⑤ \cong supplements Thm
 ⑥ Given
 ⑦ Reflexive Prop.
 ⑧ SAS \cong SAS

4.



Given: $\vec{AB}, \overline{AD} \cong \overline{EB}, \angle A \cong \angle B, \angle 1 \cong \angle 2$.

Prove: $\triangle AEC \cong \triangle BDC$.



- ① $\angle 1$ & $\angle 3$ linear pair \rightarrow ② $\angle 1$ supp $\angle 3$
 $\angle 2$ & $\angle 4$ linear pair \rightarrow ③ $\angle 2$ supp $\angle 4$ } \rightarrow ⑤ $\angle 3 \cong \angle 4$
 ④ $\angle 1 \cong \angle 2$ } \rightarrow ⑨ $\triangle AEC \cong \triangle BDC$
 ⑥ $\overline{AD} \cong \overline{EB} \rightarrow$ ⑦ $\overline{AE} \cong \overline{DB}$
 ⑧ $\angle A \cong \angle B$

- ① Def. linear pair
 ② linear pair: 2 \angle s are supp.
 ③ Given
 ④ Given
 ⑤ \cong supplements Thm
 ⑥ Given
 ⑦ Common segment Thm
 ⑧ Given
 ⑨ ASA \cong ASA