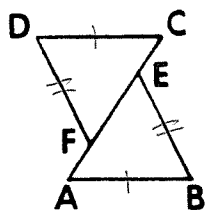


Write a flow proof for each problem.

1.



Ex. 1

If  $\overleftrightarrow{AC}$  is a straight line,  $\overline{DC} \cong \overline{BA}$ ,  $\overline{DF} \cong \overline{BE}$ , and  $\overline{CE} \cong \overline{AF}$ , prove  $\triangle AEB \cong \triangle CFD$ .

$$\begin{array}{l} \textcircled{1} \overline{CE} \cong \overline{AF} \longrightarrow \\ \textcircled{2} \overline{AE} \cong \overline{CF} \\ \textcircled{3} \overline{DC} \cong \overline{BA} \\ \quad \overline{DF} \cong \overline{BE} \end{array} \left. \vphantom{\begin{array}{l} \textcircled{1} \\ \textcircled{2} \\ \textcircled{3} \end{array}} \right\} \longrightarrow \textcircled{4} \triangle AEB \cong \triangle CFD$$

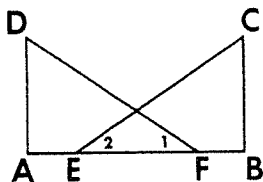
① Given

② Common segments thru

③ Given

④ SSS  $\cong$  SSS

2.



Ex. 2

Given:  $\overleftrightarrow{AC}$ ,  $\overline{CE} \cong \overline{DF}$ ,  $\angle 1 \cong \angle 2$ ,  $\overline{AE} \cong \overline{BF}$ .  
Prove:  $\triangle AFD \cong \triangle BEC$ .



$$\begin{array}{l} \textcircled{1} \overline{AE} \cong \overline{BF} \longrightarrow \\ \textcircled{2} \overline{AF} \cong \overline{EB} \\ \textcircled{3} \overline{CE} \cong \overline{DF} \\ \textcircled{4} \angle 1 \cong \angle 2 \end{array} \left. \vphantom{\begin{array}{l} \textcircled{1} \\ \textcircled{2} \\ \textcircled{3} \\ \textcircled{4} \end{array}} \right\} \longrightarrow \textcircled{5} \triangle AFD \cong \triangle BEC$$

① Given

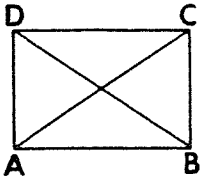
② Common segm'ts thru

③ Given

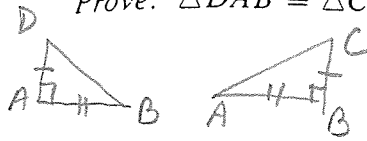
④ Given

⑤ SAS  $\cong$  SAS

3.



Given:  $\overline{DA} \cong \overline{CB}$ ,  $\overline{DA} \perp \overline{AB}$ ,  $\overline{CB} \perp \overline{AB}$ .  
 Prove:  $\triangle DAB \cong \triangle CBA$ .



- ①  $\overline{DA} \perp \overline{AB} \rightarrow$  ②  $\angle DAB$  is right. }  $\rightarrow$  ④  $\angle DAB \cong \angle CBA$   
 $\overline{CB} \perp \overline{AB} \rightarrow$  ③  $\angle CBA$  is right. }  
 ⑤  $\overline{DA} \cong \overline{CB}$   
 ⑥  $\overline{AB} \cong \overline{AB}$  } ⑦  $\triangle DAB \cong \triangle CBA$

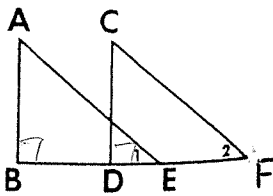
① Given

② }  $\perp$  lines form Rt.  $\angle$ s. ⑥ Reflexive prop.  
 ③ } ⑦ SAS  $\cong$  SAS

④ All rt.  $\angle$ s  $\cong$ .

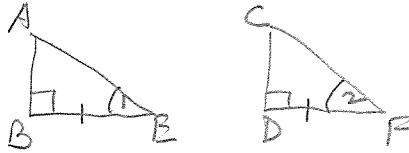
⑤ Given

4.



Ex. 6

Given:  $\overline{AB} \perp \overline{BF}$ ,  $\overline{CD} \perp \overline{BF}$ ,  $\overline{BD} \cong \overline{FE}$ ,  $\angle 1 \cong \angle 2$ .  
 Prove:  $\triangle ABE \cong \triangle CDF$ .



- ①  $\overline{AB} \perp \overline{BF} \rightarrow$  ②  $\angle B$  is Rt.  $\angle$   
 $\overline{CD} \perp \overline{BF} \rightarrow$  ③  $\angle CDF$  is Rt.  $\angle$ . }  $\rightarrow$  ⑦  $\triangle ABE \cong \triangle CDF$   
 ④  $\overline{BD} \cong \overline{FE} \rightarrow$  ⑤  $\overline{BE} \cong \overline{DF}$   
 ⑥  $\angle 1 \cong \angle 2$

① Given

②  $\perp$  lines form Rt.  $\angle$ s

③ same

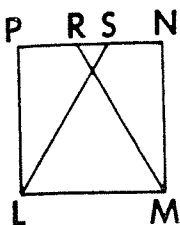
④ Given

⑤ Common segment Thm

⑥ Given

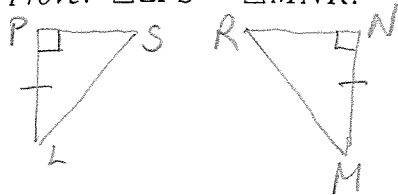
⑦ ASA  $\cong$  ASA

5.



Given:  $\overline{LP} \perp \overline{PN}$ ,  $\overline{MN} \perp \overline{PN}$ ,  $\overline{LP} \cong \overline{MN}$ ,  $\overline{PR} \cong \overline{NS}$ .

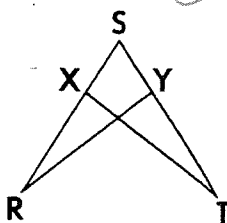
Prove:  $\triangle LPS \cong \triangle MNR$ .



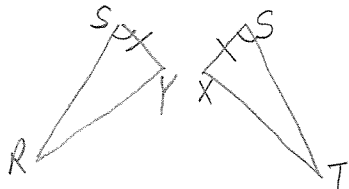
①  $\overline{LP} \perp \overline{PN} \rightarrow$  ②  $\angle P$  is right  $\angle$ .  
 $\overline{MN} \perp \overline{PN} \rightarrow$  ③  $\angle N$  is right  $\angle$ .  
 }  $\rightarrow$  ④  $\angle P \cong \angle N$   
 }  $\rightarrow$  ⑤  $\overline{LP} \cong \overline{MN}$   
 }  $\rightarrow$  ⑥  $\triangle LPS \cong \triangle MNR$   
 ⑥  $\overline{PR} \cong \overline{NS} \rightarrow$  ⑦  $\overline{PS} \cong \overline{RN}$

- ① Given
- ②  $\perp$  lines form
- ③ Rt.  $\angle$ s.
- ④ All Rt.  $\angle$ s  $\cong$
- ⑤ Given
- ⑥ Given
- ⑦ Common Segment Thm
- ⑧ SAS  $\cong$  SAS

6.



Given:  $\overleftrightarrow{SR}$  and  $\overleftrightarrow{ST}$  are straight lines,  $\overline{SX} \cong \overline{SY}$ ,  $\overline{XR} \cong \overline{YT}$ .



①  $\overline{SX} \cong \overline{SY} \rightarrow$  ②  $SX = SY$   
 $\overline{XR} \cong \overline{YT} \rightarrow$  ③  $XR = YT$   
 }  $\rightarrow$  ④  $SX + XR = SY + YT$   
 }  $\rightarrow$  ⑤  $SR = SX + XR$   
 }  $\rightarrow$  ⑥  $SR = SY + YT$   
 }  $\rightarrow$  ⑦  $\overline{SR} \cong \overline{ST}$   
 }  $\rightarrow$  ⑧  $\overline{SX} \cong \overline{SY}$   
 }  $\rightarrow$  ⑨  $\angle S \cong \angle S$   
 }  $\rightarrow$  ⑩  $\triangle RSX \cong \triangle STY$

- ① Given
- ② Def of  $\cong$  segmts
- ③  $\downarrow$  same
- ④ Addition Prop.
- ⑤ Segment Addition Postulate
- ⑥ Substitution
- ⑦ Def  $\cong$  segmts
- ⑧ Given
- ⑨ Reflexive Prop.
- ⑩ SAS  $\cong$  SAS