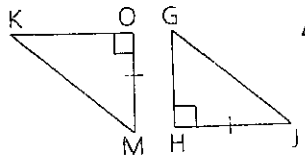
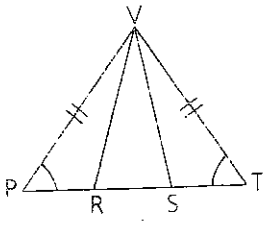
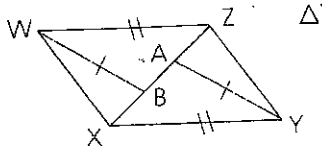
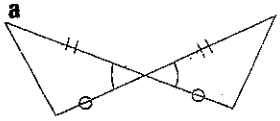
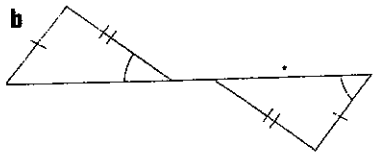
Problem Set A

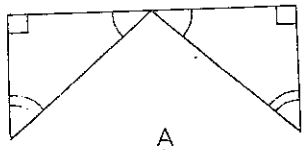
1 Study the congruent sides and angles shown by the tick marks, then identify the additional information needed to support the specified method of proving that the indicated triangles are congruent.

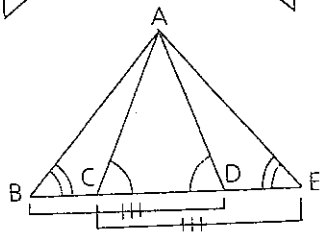
	Triangles	Method	Needed Information
a 	△HGJ and △OKM	SAS ASA	? ?
b 	△PSV and △TRV	SAS ASA	? ?
c 	△WBZ and △YAX	SSS SAS	? ?

2 Using the tick marks for each pair of △, name the method (SSS, SAS, or ASA), if any, that will prove the △ to be ≅.

a 

b 

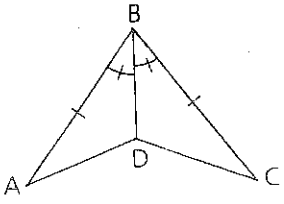
c 

d 

△ABD and △AEC

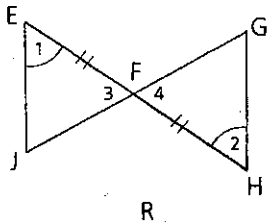
3 Given: $\overline{AB} \cong \overline{CB}$,
$\angle ABD \cong \angle CBD$

Prove: △ABD ≅ △CBD



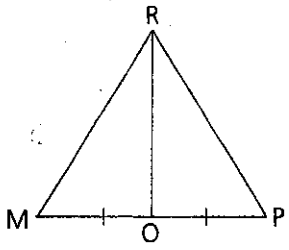
4 Given: $\angle 1 \cong \angle 2$, $\overline{EF} \cong \overline{HF}$

Prove: $\triangle EFJ \cong \triangle HFG$



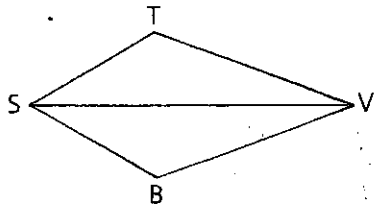
5 Given: $\overline{RO} \perp \overline{MP}$, $\overline{MO} \cong \overline{OP}$

Prove: $\triangle MRO \cong \triangle PRO$



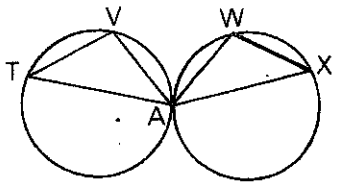
6 Given: $\overrightarrow{SV}$ bisects $\angle TSB$. $\overrightarrow{VS}$ bisects $\angle TVB$.

Prove: $\triangle TSV \cong \triangle BSV$



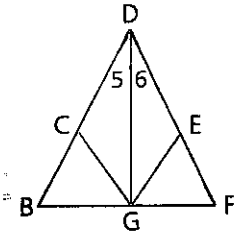
7 Given: $\overline{TV} \cong \overline{XW}$, $\overline{VA} \cong \overline{WA}$, $\overline{TA} \cong \overline{XA}$

Prove: $\triangle TVA \cong \triangle XWA$



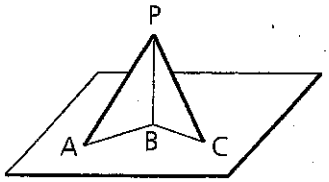
8 Given: $\overline{BC} \cong \overline{FE}$, $\overline{DC} \cong \overline{DE}$, $\angle 5 \cong \angle 6$

Prove: $\triangle BDG \cong \triangle FDG$

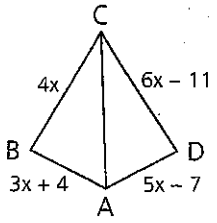


9 Two triangles are standing up on a tabletop as shown. $\overline{PA} \cong \overline{PC}$ and $\overline{BA} \cong \overline{BC}$.

Prove: $\triangle PBA \cong \triangle PBC$

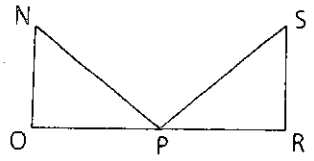


10 The perimeter of ABCD is 85. Find the value of x. Is $\triangle ABC$ congruent to $\triangle ADC$?



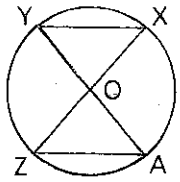
11 Given: $\angle N$ is comp. to $\angle NPO$.
$\angle S$ is comp. to $\angle SPR$.
$\angle NPO \cong \angle SPR$,
$\overline{NP} \cong \overline{SP}$

Conclusion: $\triangle NOP \cong \triangle SRP$



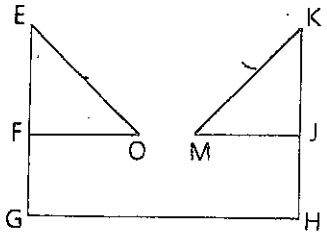
12 Given: O is the midpt. of $\overline{AY}$.
O is the midpt. of $\overline{ZX}$.

Conclusion: $\triangle ZOA \cong \triangle XOY$



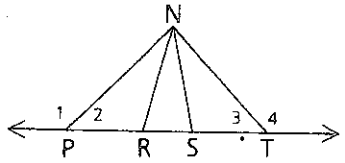
13 Given: $\overline{EO} \cong \overline{KM}$,
$\overline{FO} \cong \overline{JM}$,
$\overline{EG} \cong \overline{KH}$;
F is the midpt. of $\overline{EG}$.
J is the midpt. of $\overline{KH}$.

Conclusion: $\triangle EFO \cong \triangle KJM$



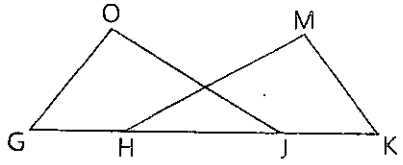
14 Given: $\angle 1 \cong \angle 4$,
$\overline{PR} \cong \overline{TS}$,
$\overline{NP} \cong \overline{NT}$

Prove: $\triangle NPR \cong \triangle NTS$



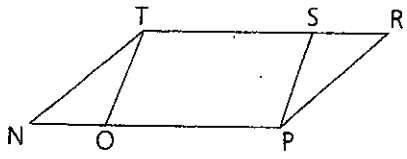
15 Given: $\overline{GH} \cong \overline{KJ}$,
$\overline{HM} \cong \overline{JO}$,
$\overline{GO} \cong \overline{KM}$

Prove: $\triangle GOJ \cong \triangle KMH$

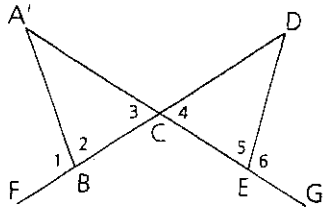


16 Given: $\angle R \cong \angle N$,
$\overline{RP} \cong \overline{NT}$,
$\overline{RT} \cong \overline{NP}$,
$\overline{TS} \cong \overline{OP}$

Conclusion: $\triangle NOT \cong \triangle RSP$



Problem Set B

17 Given: $\angle 1 \cong \angle 6$,
$\overline{BC} \cong \overline{EC}$

Conclusion: $\triangle ABC \cong \triangle DEC$