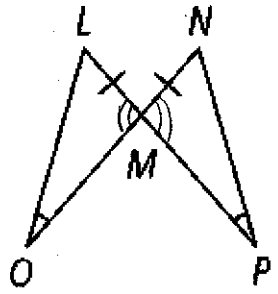
Name: Key Date:
Geometry Band:

LT#3: Prove triangles two triangles congruent using the ASA Postulate and the AAS Theorem.

Write a two-column, paragraph, or flow chart proof.

1. Given: $\angle LOM \cong \angle NPM, \overline{LM} \cong \overline{NM}$
Prove: $\Delta LOM \cong \Delta NPM$

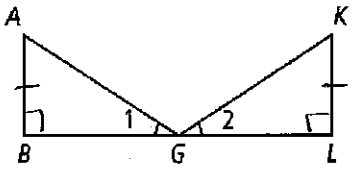


$\angle LOM \cong \angle NPM$ (Given); $\overline{LM} \cong \overline{NM}$ (Given); $\angle LMO \cong \angle NMP$ (Vertical Angles Thm)

$\Delta LOM \cong \Delta NPM$

AAS

2. Given: $\angle 1 \cong \angle 2, \overline{AB} \perp \overline{BL}, \overline{KL} \perp \overline{BL}, \overline{AB} \cong \overline{KL}$
Prove: $\Delta ABG \cong \Delta KLG$



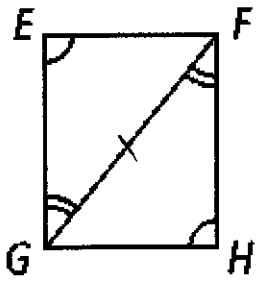
$\angle 1 \cong \angle 2$ (Given)

$\overline{AB} \perp \overline{BL}, \overline{KL} \perp \overline{BL}$ (Given) → $\angle B$ and $\angle L$ are rt. $\angle$s (Def. of $\perp$) → $\angle B \cong \angle L$ (Right $\angle$s Thm)

$\overline{AB} \cong \overline{KL}$ (Given)

$\Delta ABG \cong \Delta KLG$ (AAS)

3. Given: $\angle E \cong \angle H, \angle HFG \cong \angle EGF$
Prove: $\Delta EGF \cong \Delta HFG$

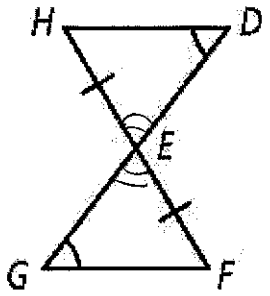


$\angle E \cong \angle H$ (Given); $\angle HFG \cong \angle EGF$ (Given); $\overline{GF} \cong \overline{FG}$ (Reflexive Prop. of $\cong$)

$\Delta EGF \cong \Delta HFG$

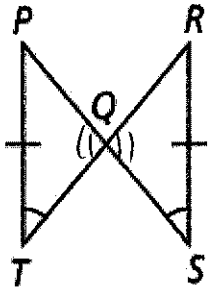
AAS

4. Given: $\angle D \cong \angle G, \overline{HE} \cong \overline{FE}$
Prove: $\Delta EFG \cong \Delta EHD$



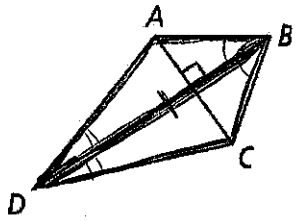
$\angle D \cong \angle G$ — Given
$\overline{HE} \cong \overline{FE}$ — Given
$\angle DEH \cong \angle GEF$ — Vertical $\angle$'s Thm
$\Delta EFG \cong \Delta EHD$ — AAS

5. Given: $\overline{PT} \cong \overline{RS}, \angle PTR \cong \angle RSP$
Prove: $\Delta PQT \cong \Delta RQS$



$\overline{PT} \cong \overline{RS}$ — Given
$\angle PTR \cong \angle RSP$ — Given
$\angle PQT \cong \angle RQS$ — Vertical $\angle$'s Thm
$\Delta PQT \cong \Delta RQS$ — AAS

6. Given: $\overline{BD}$ is the angle bisector of $\angle ABC$ and $\angle ADC$.
Prove: $\Delta ABD \cong \Delta CBD$



$\overline{BD}$ is $\angle$ bis. of $\angle ABC$ and $\angle ADC$ — Given
$\angle ABD \cong \angle CBD$, $\angle ADB \cong \angle CDB$ — Def. of $\angle$ bis.
$\overline{BD} \cong \overline{BD}$ — Reflexive Prop. of $\cong$
$\Delta ABD \cong \Delta CBD$ — ASA