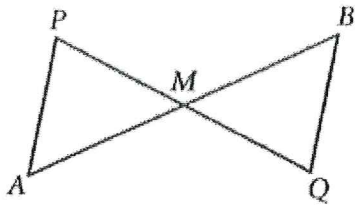
GEOMETRY
CONGRUENT TRIANGLES PROOFS

Name Key

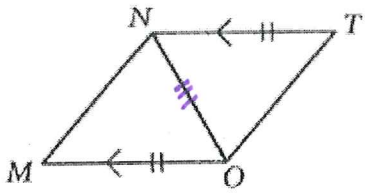
Write a two column proof for the following problems.

1. Given: M is the midpoint of $\overline{AB}$ and $\overline{PQ}$
   Prove: $\Delta APM \cong \Delta QBM$



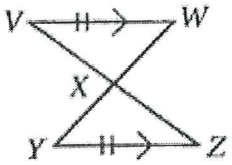
1. M is midpt of AB & PQ	1. given
2. AM ≅ MB, PM ≅ MQ	2. def of midpt
3. ∠PMA ≅ ∠QMB	3. Vertical ∠s ≅
4. ΔAPM ≅ ΔQBM	4. SAS

2. Given: $\overline{NT}$ is parallel and ≅ to $\overline{MO}$
   Prove: ~~$\Delta MON \cong \Delta TNO$~~ ∠M ≅ ∠T



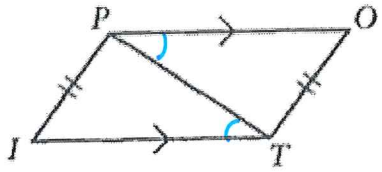
1. NT // MO, NT ≅ MO	1. given
2. NO ≅ NO	2. reflexive
3. ∠NOM ≅ ∠TNO	3. alt int. ∠s are ≅
4. ΔMON ≅ ΔTNO	4. SAS
5. ∠M ≅ ∠T	5. cpctc

3. Given: $\overline{VW}$ is parallel and $\cong$ to $\overline{YZ}$
Prove: $\Delta XVW \cong \Delta XYZ$



1. $VW \cong YZ$, $VW \parallel YZ$	1. given
2. $\angle V \cong \angle Z$, $\angle W \cong \angle Y$	2. alt int $\angle$s $\cong$
3. $\Delta XVW \cong \Delta XYZ$	3. ASA

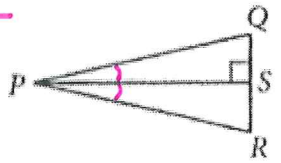
4. Given: $\overline{PO}$ is parallel to $\overline{IT}$, $\angle O \cong \angle I$
$\overline{PI} \cong \overline{TO}$
Prove: ~~$\Delta PIT \cong \Delta TOP$~~ $PO \cong IT$



1. $PO \parallel IT$, $\angle O \cong \angle I$, $PI \cong TO$	1. given
2. $\angle OPT \cong \angle ITP$	2. alt int. $\angle$s $\cong$
2.5 $PT \cong PT$	2.5 reflexive
3. $\Delta PIT \cong \Delta TOP$	3. AAS
4. $PO \cong IT$	4. cpctc

~~NOT possible~~

5. Given: $\overline{PS}$ is the angle bisector of $\angle QPR$, $\angle QSR \cong \angle RSP$
Prove: ~~$\Delta PQS \cong \Delta PRS$~~ ~~$QS \cong SR$~~ S is midpt of QR



1. PS is $\angle$ bisector of $\angle QPR$, $\angle QSP \cong \angle RSP$	1. given
2. $PS \cong PS$	2. reflexive
3. $\Delta PQS \cong \Delta PRS$	3. ASA
4. $QS \cong RS$	4 cpctc
5. S is midpt of QR	5. def of midpt