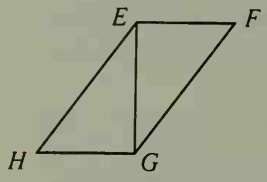
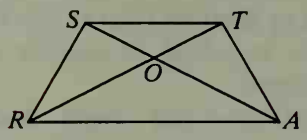
Write proofs in two-column form.

3. Given: $\overline{EF} \perp \overline{EG}$; $\overline{HG} \perp \overline{EG}$; $\overline{EH} \cong \overline{GF}$
   Prove: $\angle H \cong \angle F$

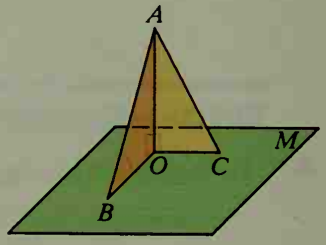


4. Given: $\overline{RT} \cong \overline{AS}$; $\overline{RS} \cong \overline{AT}$
   Prove: $\angle TSA \cong \angle STR$



Use the information given in each exercise to name the method (SSS, SAS, ASA, AAS, or HL) you could use to prove $\triangle AOB \cong \triangle AOC$. You need not write the proofs.

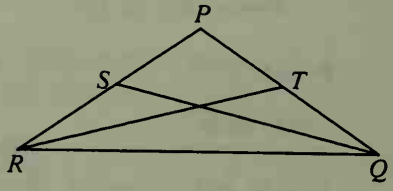
5. Given: $\overline{AO} \perp$ plane M; $\overline{BO} \cong \overline{CO}$
6. Given: $\overline{AO} \perp$ plane M; $\angle B \cong \angle C$
7. Given: $\overline{AO} \perp$ plane M; $\overline{AB} \cong \overline{AC}$



B

8. Given: $\overline{AB} \cong \overline{AC}$; $\overline{OB} \cong \overline{OC}$
   a. Is it possible to prove that $\angle AOB \cong \angle AOC$?
   b. Is it possible to prove that $\angle AOB$ and $\angle AOC$ are right angles?

9. In many proofs you may find that different methods can be used. You may not know in advance which method will be better. There are *two* possible pairs of overlapping triangles that could be used in this proof. To compare the two methods, write a two-column proof for each plan.



   Given: $\overline{PR} \cong \overline{PQ}$; $\overline{SR} \cong \overline{TQ}$
   Prove: $\overline{QS} \cong \overline{RT}$
   a. **Plan for Proof:** Show that $\triangle RQS \cong \triangle QRT$ by SAS.
   b. **Plan for Proof:** Show that $\triangle PQS \cong \triangle PRT$ by SAS.

10. a. Draw an isosceles $\triangle RST$ with $\overline{RT} \cong \overline{ST}$. Let M be the midpoint of $\overline{ST}$ and N be the midpoint of $\overline{RT}$. Draw $\overline{RM}$ and $\overline{SN}$ and label their common point O. Now draw $\overline{NM}$.
    b. Name four *pairs* of congruent triangles.

Tell which pairs of congruent parts and what method (SSS, SAS, ASA, AAS, or HL) you would use to prove the triangles are congruent.

11. Given: $\angle 1 \cong \angle 2$; $\angle 3 \cong \angle 4$; $\overline{QR} \cong \overline{TS}$
    $\triangle QPR \cong \triangle TPS$ by what method?
12. Given: $\angle 3 \cong \angle 4$; $\angle 5 \cong \angle 6$
    $\triangle PQX \cong \triangle PTY$ by what method?
13. Given: $\angle 3 \cong \angle 4$; $\angle 5 \cong \angle 6$
    $\triangle QPY \cong \triangle TPX$ by what method?