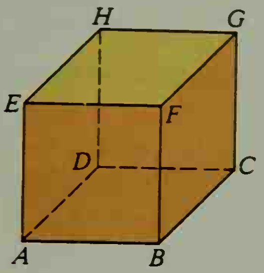
Copy each three-dimensional figure and with colored pencils outline the triangles listed. What postulate proves that these triangles are congruent?

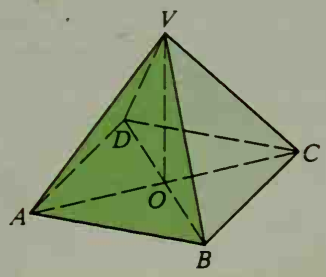
C 26.



Given: Cube whose faces are congruent squares

Show: $\triangle ABF$, $\triangle BCG$

27.



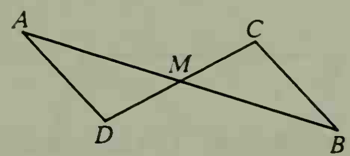
Given: Pyramid with square base; $VA = VB = VC = VD$

Show: $\triangle VAB$, $\triangle VBC$

4-3 *Using Congruent Triangles*

Our goal in the preceding section was to prove that two triangles are congruent. Our goal in this section is to deduce information about segments or angles once we have shown that they are corresponding parts of congruent triangles.

Example 1



Given: $\overline{AB}$ and $\overline{CD}$ bisect each other at M.

Prove: $\overline{AD} \parallel \overline{BC}$

Plan for Proof: You can prove $\overline{AD} \parallel \overline{BC}$ if you can show that alternate interior angles $\angle A$ and $\angle B$ are congruent. You will know that $\angle A$ and $\angle B$ are congruent if they are corresponding parts of congruent triangles. The diagram suggests that you try to prove $\triangle AMD \cong \triangle BMC$.

Proof:

Statements	Reasons
1. $\overline{AB}$ and $\overline{CD}$ bisect each other at M.	1. Given
2. M is the midpoint of $\overline{AB}$ and of $\overline{CD}$.	2. Def. of a bisector of a segment
3. $\overline{AM} \cong \overline{MB}$; $\overline{DM} \cong \overline{MC}$	3. Def. of midpoint
4. $\angle AMD \cong \angle BMC$	4. Vertical $\angle$s are $\cong$.
5. $\triangle AMD \cong \triangle BMC$	5. SAS Postulate
6. $\angle A \cong \angle B$	6. Corr. parts of $\cong$ $\triangle$s are $\cong$.
7. $\overline{AD} \parallel \overline{BC}$	7. If two lines are cut by a transversal and alt. int. $\angle$s are $\cong$, then the lines are $\parallel$.