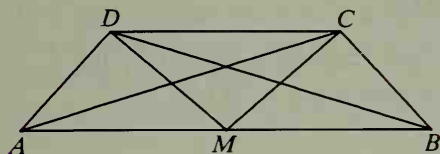


- C 15.** Given: $\overline{AM} \cong \overline{MB}$; $\overline{AD} \cong \overline{BC}$;

$$\angle MDC \cong \angle MCD$$

Prove: $\overline{AC} \cong \overline{BD}$

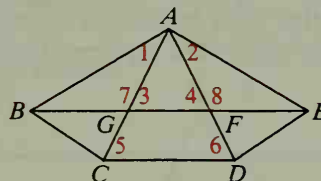


- 16.** Given: $\angle 1 \cong \angle 2$;

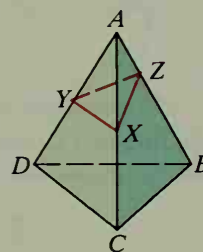
$$\angle 3 \cong \angle 4$$

$$\angle 5 \cong \angle 6$$

Prove: $\overline{BC} \cong \overline{ED}$



- 17.** A, B, C , and D are noncoplanar. $\triangle ABC$, $\triangle ACD$, and $\triangle ABD$ are equilateral. X and Y are midpoints of \overline{AC} and \overline{AD} . Z is a point on \overline{AB} . What kind of triangle is $\triangle XYZ$? Explain.



Mixed Review Exercises

1. Write the Isosceles Triangle Theorem (Theorem 4-1) and its converse (Theorem 4-2) as a single biconditional statement.

Complete each statement with the word *always*, *sometimes*, or *never*.

2. Two isosceles triangles with congruent bases are ? congruent.
3. Two isosceles triangles with congruent vertex angles are ? congruent.
4. Two equilateral triangles with congruent bases are ? congruent.

Draw a diagram for each of the following.

5. a. M is between A and B .
b. M is the midpoint of \overline{AB} .
6. a. \overline{XY} bisects \overline{CD} .
b. \overline{XY} bisects $\angle CXD$.
7. a. acute scalene $\triangle JKL$
b. obtuse scalene $\triangle JKL$
8. a. acute isosceles $\triangle XYZ$
b. obtuse isosceles $\triangle XYZ$
9. a. right scalene $\triangle RST$
b. right isosceles $\triangle RST$
10. a. equilateral $\triangle EFG$
b. equiangular $\triangle EFG$

11. Write a proof in two-column form.

$$\text{Given: } \overline{BE} \cong \overline{CD}; \overline{BD} \cong \overline{CE}$$

Prove: $\triangle ABC$ is isosceles.

