# Self-Test 1

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

1. Two lines that do not intersect are __?__ parallel.

2. Two skew lines __?__ intersect.

3. Two lines parallel to a third line are __?__ parallel.

4. If a line is parallel to plane X and also to plane Y, then plane X and plane Y are __?__ parallel.

5. Plane X is parallel to plane Y. If plane Z intersects X in line l and Y in line n, then l is __?__ parallel to n.

6. Name two pairs of congruent alternate interior angles.

7. Name two pairs of congruent corresponding angles.

8. Name a pair of supplementary same-side interior angles.

Exs. 6–8

9. Complete: If $\overline{AE} \parallel \overline{BD}$, then $\angle 1 \cong$ __?__ and $\angle 9 \cong$ __?__.

10. If $\overline{ED} \parallel \overline{AC}$, name all pairs of angles that must be congruent.

11. If $\overline{ED} \parallel \overline{AC}$ and $\overline{EB} \parallel \overline{DC}$, name all angles that must be congruent to $\angle 5$.

12. Complete: If $\overline{ED} \parallel \overline{AC}$, $\overline{EB} \parallel \overline{DC}$, and $m\angle 2 = 65$, then $m\angle 8 =$ __?__ and $m\angle EDC =$ __?__.
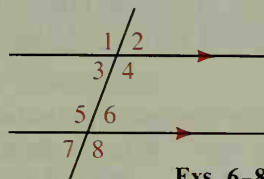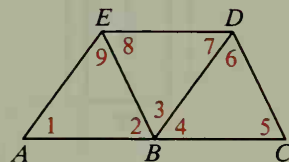
Exs. 9–15

Use the given information to name the segments (if any) that must be parallel.

13. $\angle 3 \cong \angle 6$ 14. $\angle 9 \cong \angle 6$ 15. $m\angle 7 + m\angle AED = 180$

16. Complete: Through a point outside a line, __?__ line(s) can be drawn parallel to the given line, and __?__ line(s) can be drawn perpendicular to the given line.

Explorations

These exploratory exercises can be done using a computer with a program that draws and measures geometric figures.

Draw a triangle ABC. At each vertex extend one side, as shown in the diagram. Measure all six angles formed. Repeat on several triangles. What do you notice?
What is the sum of the measures of the angles inside the triangle? of the angles outside the triangle?