

Key Concepts

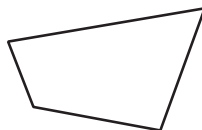
Lesson
6-4

Classifying Quadrilaterals

Objective Introduce descriptions of several special types of quadrilaterals, and teach students to classify quadrilaterals according to their sides or angles.

Note to the Teacher *In this lesson your students will learn the names of special quadrilaterals. The names describe certain properties of the sides or the angles of the quadrilaterals. The students will then be asked to classify quadrilaterals according to whether their sides or angles have these properties. Drawing lots of figures on the chalkboard, and having the students draw lots of figures, will enhance their understanding.*

Begin the lesson by discussing the term *quadrilateral*. A **quadrilateral** is a polygon with four sides. The prefix quad- means *four* and the word lateral refers to *sides*, so the word quadrilateral means *four sides*. Draw this figure on the chalkboard.



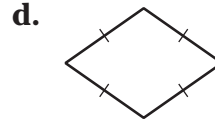
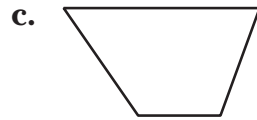
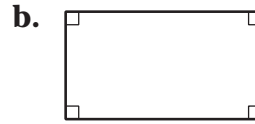
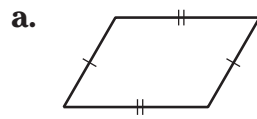
Now introduce your students to the following terms regarding quadrilaterals. Remind them that *congruent sides* of a polygon are the same length.

On the chalkboard, copy the following table which describes five special types of quadrilaterals.

Name of the Quadrilateral	Description
Parallelogram	Quadrilateral whose opposite sides are parallel and congruent.
Trapezoid	Quadrilateral with exactly one pair of parallel sides.
Rectangle	Parallelogram with four right angles.
Rhombus	Parallelogram with four congruent sides.
Square	Rectangle with four congruent sides.

Draw several different quadrilaterals on the chalkboard and have your students classify them using the descriptions given in the table. Then give students some more examples from the Student Edition to classify by themselves or in small groups.

Example Classify each quadrilateral either by its angles or its sides.



- Solution**
- a. This is a *parallelogram* since the opposite sides are parallel. The opposite sides are also congruent.
 - b. This is a *rectangle* since it is a parallelogram whose four angles are all right angles. (It is *not* a square since all four sides are not congruent.)
 - c. This is a *trapezoid* since it has just one pair of parallel sides.
 - d. This is a *rhombus* since it is a parallelogram with all four of its sides congruent. (It is *not* a square since its angles are not right angles.)

