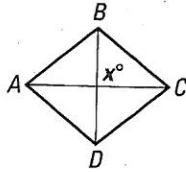


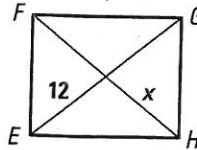
**Checkpoint** Use Diagonals

Find the value of  $x$ .

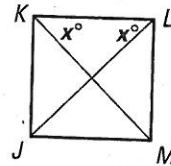
4. rhombus  $ABCD$



5. rectangle  $EFGH$



6. square  $JKLM$



## 6.4 Exercises

### Guided Practice

#### Vocabulary Check

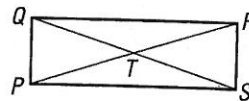
1. What is the name for a parallelogram with four congruent sides?

#### Skill Check

List all of the properties that must be true for the quadrilateral.

- |                  |                                   |
|------------------|-----------------------------------|
| 2. Parallelogram | A. All sides are congruent.       |
| 3. Rectangle     | B. All angles are congruent.      |
| 4. Rhombus       | C. The diagonals are congruent.   |
| 5. Square        | D. Opposite angles are congruent. |

6.  $PQRS$  is a rectangle. The length of  $\overline{QS}$  is 12. Find  $PR$  and  $PT$ .



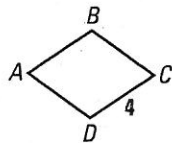
### Practice and Applications

#### Extra Practice

See p. 686.

Using Properties Find the measures.

7. rhombus  $ABCD$

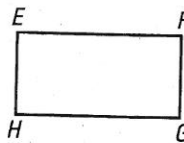


$AB = \underline{\quad ? \quad}$

$BC = \underline{\quad ? \quad}$

$AD = \underline{\quad ? \quad}$

8. rectangle  $EFGH$

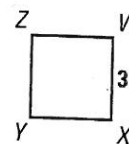


$m\angle E = \underline{\quad ? \quad}^\circ$

$m\angle F = \underline{\quad ? \quad}^\circ$

$m\angle G = \underline{\quad ? \quad}^\circ$

9. square  $WXYZ$



$m\angle W = \underline{\quad ? \quad}^\circ$

$YZ = \underline{\quad ? \quad}$

$XY = \underline{\quad ? \quad}$

#### Homework Help

- Example 1: Exs. 7–9
- Example 2: Exs. 10–12
- Example 3: Ex. 22
- Example 4: Ex. 13

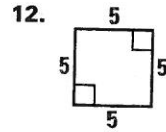
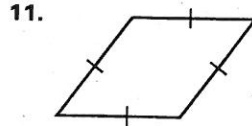
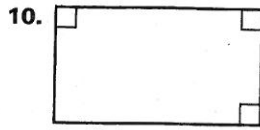
**Link to Careers**



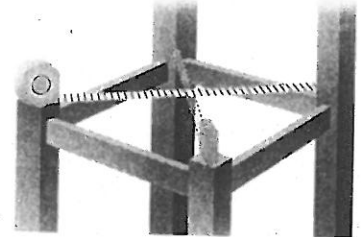
**FURNITURE DESIGNERS** use geometry, trigonometry, and artistic skills to create designs for furniture.



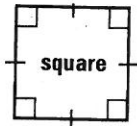
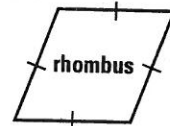
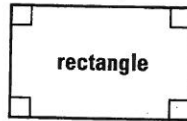
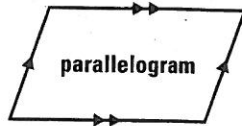
**Using Corollaries** Use the information in the diagram to name the special quadrilateral.



13. **Making a Chair** If you measure the diagonals of the chair frame as shown and find that they are congruent, can you conclude that the frame is rectangular? If not, what other information do you need? Explain your reasoning.



**Sorting Quadrilaterals** In Exercises 14–17, list each quadrilateral for which the statement is true.

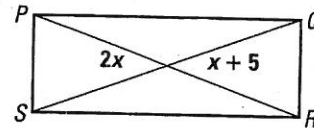


14. It has four right angles.      15. Opposite sides are congruent.  
 16. Diagonals bisect each other.      17. Diagonals are perpendicular.

**Using Algebra**

**EXAMPLE Use Properties of Quadrilaterals**

*PQRS* is a rectangle.  
Find the value of  $x$ .



**Solution**

$$PR = SQ$$

$$2x = x + 5$$

$$x = 5$$

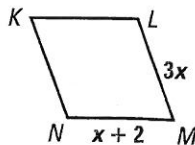
Diagonals of a rectangle are congruent.

Substitute  $2x$  for  $PR$  and  $x + 5$  for  $SQ$ .

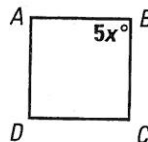
Subtract  $x$  from each side.

**Using Algebra Find the value of  $x$ .**

18. rhombus *KLMN*



19. square *ABCD*



20. rectangle *EFGH*

