

# Independent Practice

## 9.2

NAME \_\_\_\_\_

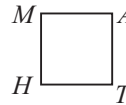
Module 9 Characteristics of Geometric Shapes  
Lesson 2 Quadrilaterals

For each statement, place an X in the columns for which it is true.

	Parallelogram	Rectangle	Rhombus	Square	Trapezoid
1. Both pairs of sides are parallel.	X	X	X	X	
2. All the angles are right angles.		X		X	
3. All the sides are congruent.			X	X	
4. The figure is a quadrilateral.	X	X	X	X	X

5. Name the square two different ways.

*MATH, MHTA*



Write always, sometimes, or never.

6. A parallelogram is a rhombus.

*Sometimes*

7. A rhombus is a parallelogram.

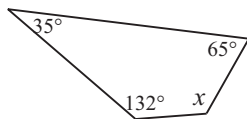
*Always*

8. A trapezoid is a quadrilateral.

*Always*

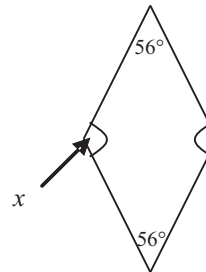
Find the value of  $x$ .

9.



$x = 128^\circ$

10.



$x = 124^\circ$

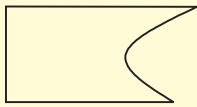
11. Amanda is trying to determine the borders for a flower garden. She has two possible designs. The first has the garden in the shape of a square enclosing an area of 900 square feet. The second design has the same perimeter as the first, but it is in the shape of a trapezoid such that the parallel sides have lengths of 30 feet and 42 feet. The nonparallel sides are congruent. What are the lengths of the nonparallel sides?

**The nonparallel sides are 24 feet in length.**

### Journal

1. Explain why each of the following shapes is not a quadrilateral.

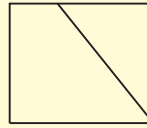
a.



b.



c.



2. Explain why all squares are rectangles but not all rectangles are squares.
3. How are a parallelogram and trapezoid alike? How are they different?

### Cumulative Review

Find the measure of the complement and supplement of each angle.

1.  $105^\circ$

2.  $65^\circ$

3.  $2^\circ$

**Comp: none**  
**Supp:  $75^\circ$**

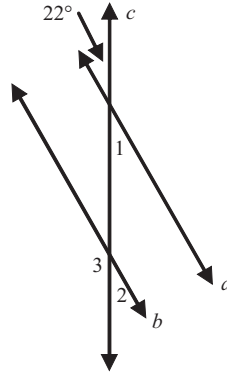
**Comp:  $25^\circ$**   
**Supp:  $115^\circ$**

**Comp:  $88^\circ$**   
**Supp:  $178^\circ$**

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Lines  $a$  and  $b$  are parallel.  
Find the measure of each angle.



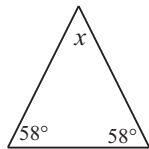
4.  $\angle 1$   
 $22^\circ$

5.  $\angle 2$   
 $22^\circ$

6.  $\angle 3$   
 $158^\circ$

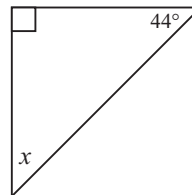
Find the value of  $x$ .

7.



$x = 64^\circ$

8.



$x = 46^\circ$

9. The sides of a triangle are 8 cm, 10 cm, and 13 cm. Is the triangle a right triangle?

No:  $64 + 100 \neq 169$

### Possible Journal Answers

1.
  - a. This figure is not a quadrilateral because one of the sides is not a line segment. A line segment is always straight, not curved.
  - b. This figure is not a quadrilateral because it is not closed. Two endpoints are not connected.
  - c. This figure is not a quadrilateral because a segment is intersecting another segment at its side, not at its endpoint.
2. All squares are rectangles because a rectangle must have four right angles, and all squares have four right angles. All rectangles are not squares because a square must have four congruent sides, and a rectangle can have two sides that are a different length than the other two sides.
3. A parallelogram and a trapezoid are alike in that they are both quadrilaterals and have at least one pair of parallel sides. They are different because a trapezoid has exactly one pair of parallel sides and because a parallelogram has two pairs of parallel sides.