NAME_____

Module 9 **Characteristics of Geometric Shapes**
Lesson 2 **Quadrilaterals**

Lesson Notes 9.2

Lesson Objectives

- Classify quadrilaterals.
- Use paper and physical models to determine the sum of the measures of interior angles of quadrilaterals.
- Find the missing measure of a quadrilateral.
- Compare quadrilaterals.

Subtopic 1 Types of Quadrilaterals

Quadrilateral

- A **simple** polygon
- **Four** sides
- Each side intersects at points called **vertices**.

A quadrilateral has four **sides**. A quadrilateral has four **vertices**.

A quadrilateral is named using **consecutive** vertices.

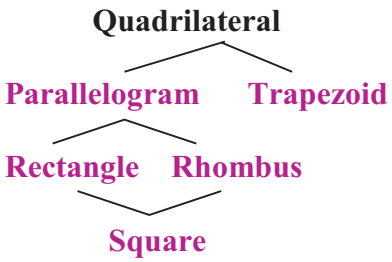
A parallelogram is a quadrilateral with two pairs of **parallel** sides.

A rectangle is a parallelogram with four **right** angles.

A **rhombus** is a parallelogram with four congruent sides.

A square is a **parallelogram** with four right angles and four congruent sides.

A trapezoid is a quadrilateral with exactly **one** pair of parallel sides.



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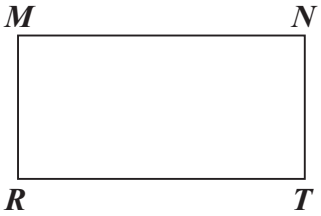
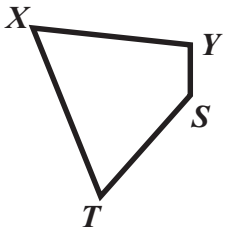
1 Classify the figure in as many ways as possible. Then, name the figure two different ways.



Quadrilateral, Parallelogram, Rectangle
MNTR, TNMR

2 Classify the figure on the right in as many ways as possible.

Quadrilateral



3 Give the most specific classification possible for each figure.

Parallelogram

Trapezoid

Rectangle

4 Tell whether each statement is true or false. Explain your answer.

- Every rectangle is a parallelogram.
  True: Every rectangle has two pairs of parallel sides.

- A square is never a trapezoid.
  True: Trapezoids have only one pair of parallel sides, while squares have exactly two pairs of parallel sides.

- All quadrilaterals are trapezoids.
  False: Not every quadrilateral has one pair of sides parallel. Here is a quadrilateral with no parallel sides.

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Subtopic 2 Angles of Quadrilaterals

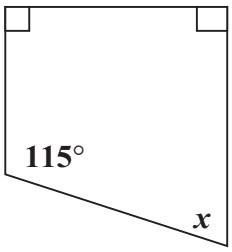
Quadrilateral Sum Property
The sum of the angle measures of a quadrilateral is **360°**.

Find the value of *x*.

5

$40° + 140° + 40° + x = 360°$
$220° + x = 360°$
$x = 140°$

6



$90° + 90° + 115° + x = 360°$
$295° + x = 360°$
$x = 65°$

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