

Lesson 7.4

Quadrilaterals

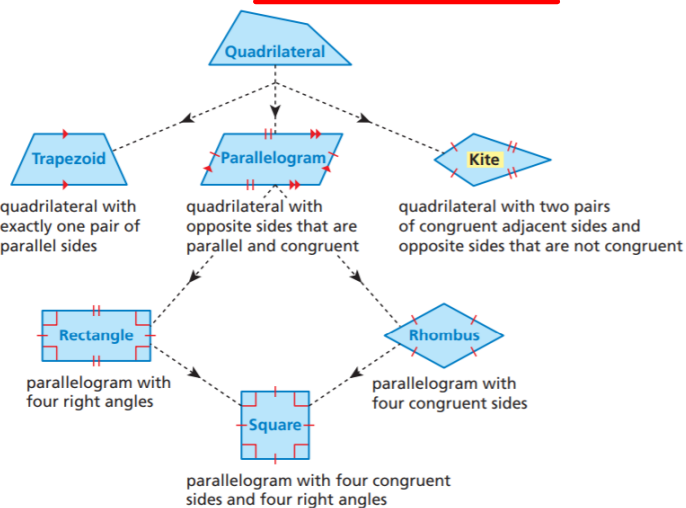
Mar 1-11:03 AM

7.4 Notes
Get out your spiral notebook and protractor too!

Essential Question

How can you classify quadrilaterals? Explain using properties of sides and angles.

A quadrilateral is a polygon with four sides. The diagram shows properties of different types of quadrilaterals and how they are related. When identifying a quadrilateral, use the name that is most specific.



Essential Question

Example 1:

Classify the quadrilateral.

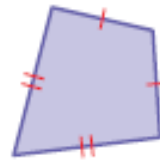
a.



Square

- 4 right angles
- 4 congruent sides

b.



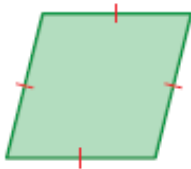
Kite

- 2 pairs of congruent sides, not opposites

Example 1

Classify the quadrilateral.

1.



Rhombus

- 4 congruent sides
- No right angles

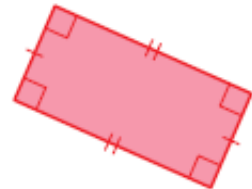
2.



Trapezoid

- 1 pair of parallel sides

3.



Rectangle

- 4 right angles
- 2 pairs of congruent sides

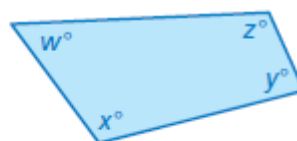
On your own 1-3

Key Idea

Sum of the Angle Measures of a Quadrilateral

Words The sum of the angle measures of a quadrilateral is 360° .

Algebra $w + x + y + z = 360$



Key Idea

Example 2:

Find the value of x .



$$115^\circ + 70^\circ + 75^\circ + x^\circ = 360^\circ$$

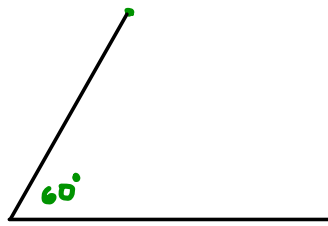
$$115^\circ + 145^\circ + x^\circ = 360^\circ$$

$$\begin{array}{r} 260^\circ + x^\circ = 360^\circ \\ -260^\circ \quad -260^\circ \\ \hline x^\circ = 100^\circ \end{array}$$

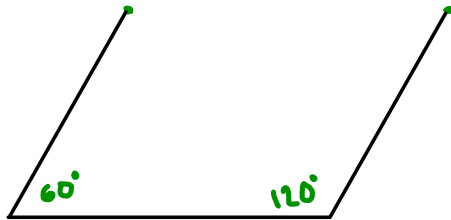
Example 2

Example 3:

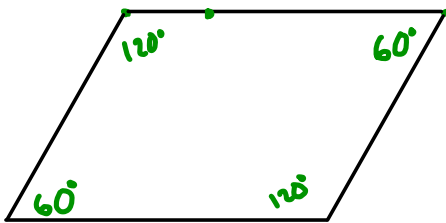
Draw a parallelogram with a 60° angle and a 120° angle.



1) Draw a 60° angle.



2) Put a 120° angle on the other side.



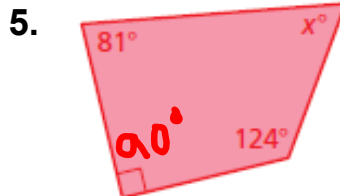
3) Measure another 60° angle and connect the sides.

Example 3

Find the value of x .



$$\begin{aligned}
 &100^\circ + 80^\circ + 100^\circ + x^\circ = 360^\circ \\
 &280^\circ + x^\circ = 360^\circ \\
 &\underline{-280^\circ} \quad \underline{-280^\circ} \\
 &x^\circ = 80^\circ
 \end{aligned}$$



$$\begin{aligned}
 &81^\circ + 90^\circ + 124^\circ + x^\circ = 360^\circ \\
 &171^\circ + 124^\circ + x^\circ = 360^\circ \\
 &295^\circ + x^\circ = 360^\circ \\
 &\underline{-295^\circ} \quad \underline{-295^\circ} \\
 &x^\circ = 65^\circ
 \end{aligned}$$