

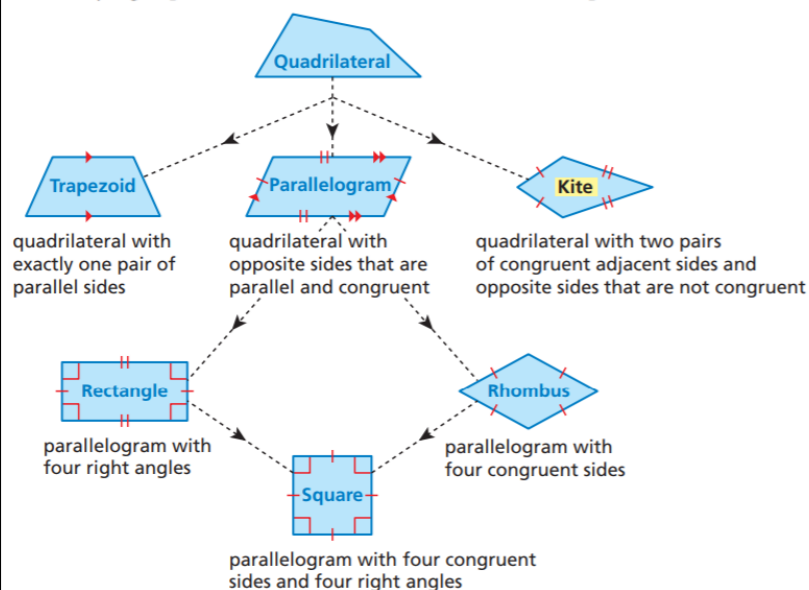
# Lesson 12.4:

# Quadrilaterals

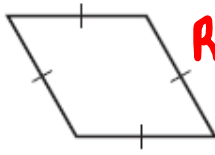
## Essential Question

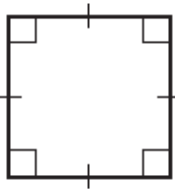
How can you classify quadrilaterals?

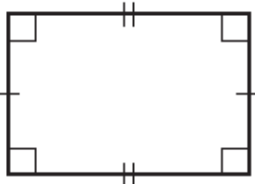
A quadrilateral is a polygon with four sides. The diagram shows properties of different types of quadrilaterals and how they are related. When identifying a quadrilateral, use the name that is most specific.

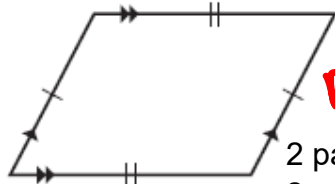


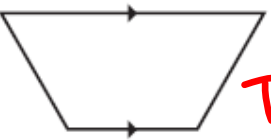
**Classify the quadrilateral.**

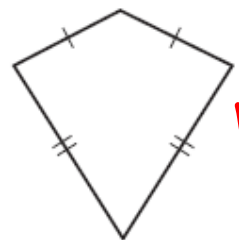
1.  **Rhombus**  
4 congruent sides,  
but not a square

2.  **Square**


3.  **Rectangle**

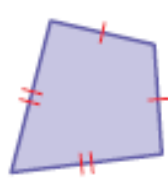
4.  **Parallelogram**  
2 pairs of parallel sides,  
2 pairs of congruent sides

5.  **Trapezoid**

6.  **Kite**

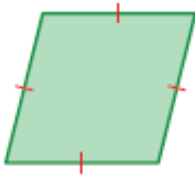
**Classify the quadrilateral.**

a.  **Square**

b.  **Kite**

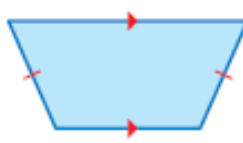
Classify the quadrilateral.

1.



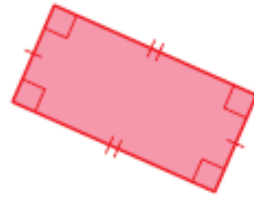
Rhombus

2.



Trapezoid

3.



Rectangle

### Key Idea

#### Sum of the Angle Measures of a Quadrilateral

**Words** The sum of the angle measures of a quadrilateral is  $360^\circ$ .

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



Find the value of  $x$ .



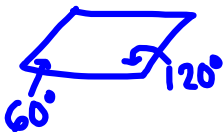
$$115 + 70 + 75 + x = 360$$

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

$$\begin{array}{r} 115 \\ 70 \\ + 75 \\ \hline 260 \end{array}$$

Draw a parallelogram with a  $60^\circ$  angle and a  $120^\circ$  angle.

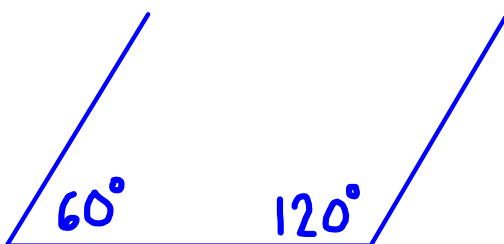
1) Sketch



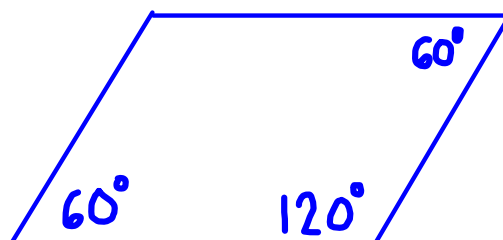
2) Draw the first angle



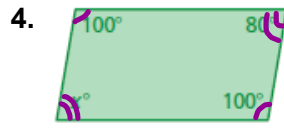
3) Draw the second angle on the other end



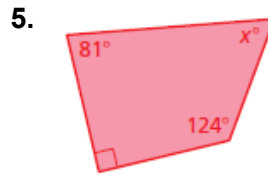
4) Draw another angle congruent to the first angle



Find the value of x.



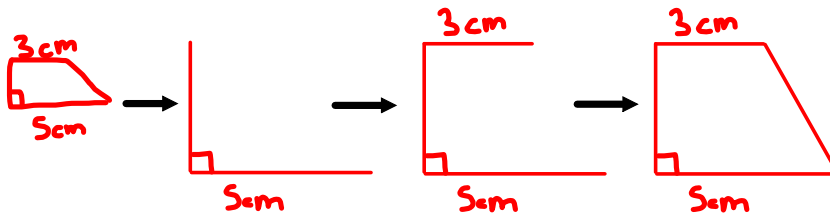
$$x = 80^\circ$$



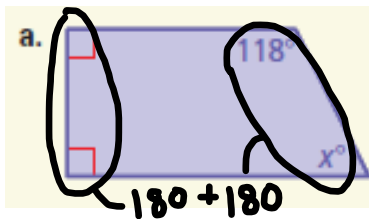
$$81 + 90 + 124 + x = 360$$

$$\begin{array}{r} 295 + x = 360 \\ -295 \quad -295 \\ \hline x = 65 \end{array}$$

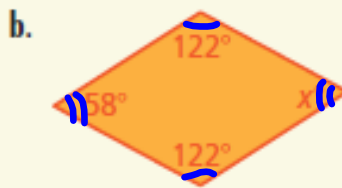
6. Draw a right trapezoid whose parallel sides have lengths of 3 centimeters and 5 centimeters.



Exit Ticket: Find the value of x.



$$\begin{array}{r} 118 + x = 180 \\ -118 \quad -118 \\ \hline x = 62 \end{array}$$



$$x = 58^\circ$$