

Study Guide

Student Edition
Pages 298–304**Tests for Parallelograms**

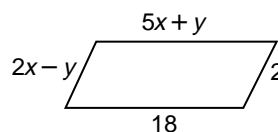
You can show that a quadrilateral is a parallelogram if you can show that one of the following is true.

1. Both pairs of opposite sides are parallel.
2. Both pairs of opposite sides are congruent.
3. Diagonals bisect each other.
4. Both pairs of opposite angles are congruent.
5. A pair of opposite sides are both parallel and congruent.

Example: Find the values of x and y that ensure the quadrilateral is a parallelogram.

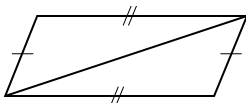
Since opposite sides of a parallelogram must be congruent, then $5x + y = 18$ and $5x - y = 2$.

Solving the system of two equations, you get $x = 2$ and $y = 8$.

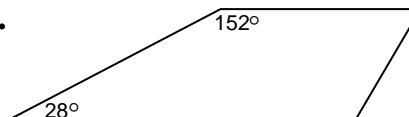


Determine if each quadrilateral is a parallelogram. Justify your answer.

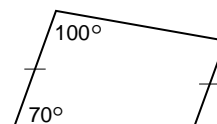
1.



2.

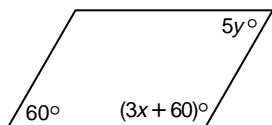


3.

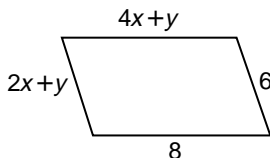


Find the values of x and y that ensure each quadrilateral is a parallelogram.

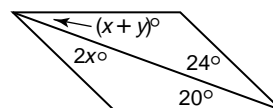
4.



5.



6.



7. Identify the subgoals you would need to accomplish to complete the proof.

Given: $\overrightarrow{AB} \perp \text{plane } BCD$
 $\overline{DB} \cong \overline{CB}$

Prove: $\angle DAB \cong \angle CAB$

