

Corner and Line Detectives

Find parallel sides, perpendicular sides and right angles.

GRADE 3 • 3.GSR.6.1

3.GSR.6.1 "Identify perpendicular line segments, parallel line segments, and right angles, identify these in polygons, and solve problems involving parallel line segments, perpendicular line segments, and right angles."

NAME _____

DATE _____

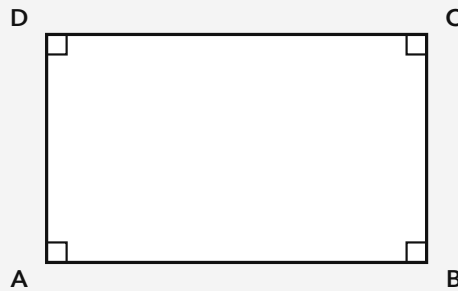
You will need: Use a pencil, ruler and the square corner of a piece of paper to check right angles. Name a side by its two endpoint letters, such as AB.

LOOK AT HOW SIDES MEET

A right angle is a square corner. Perpendicular segments meet at a right angle. Parallel segments lie on lines that never meet, even when extended. Turning a shape does not change these properties.

WORKED EXAMPLE

Find one parallel pair and one perpendicular pair in rectangle ABCD.

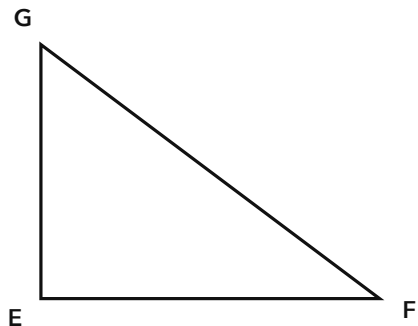


1. AB and CD run in the same direction and would never meet if extended.
2. AB and AD meet at the square corner A.

Answer: AB and CD are parallel. AB and AD are perpendicular; angle A is a right angle.

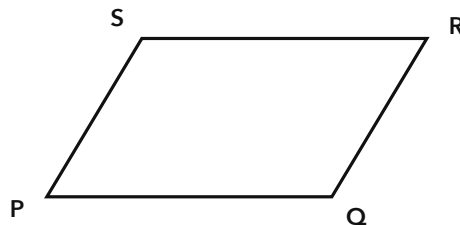
PRACTICE 4 problems

- 1** In triangle EFG, name the right-angle corner and its two perpendicular sides. Does the triangle have a pair of parallel sides?



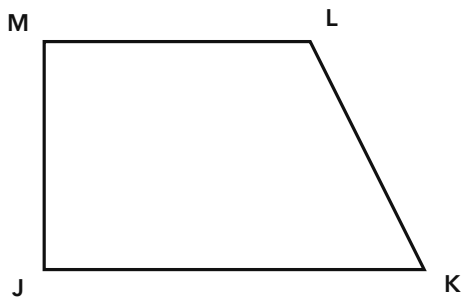
ANSWER _____

- 2** Name both pairs of parallel sides in parallelogram PQRS. Does it have any right angles? Check with a paper corner.



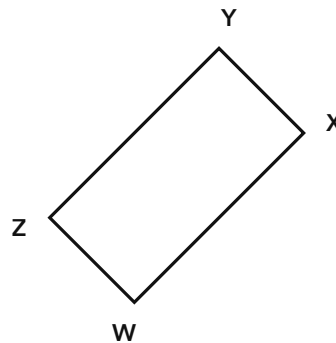
ANSWER _____

- 3** In quadrilateral JKLM, name the two right-angle corners and one pair of parallel sides.



ANSWER _____

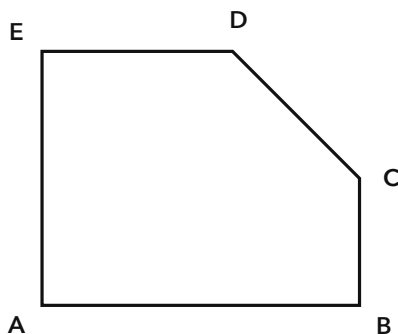
- 4** The rectangle WXYZ is turned. Name a perpendicular pair and both parallel pairs.



ANSWER _____

APPLY IT Show your work

- 1** The sides of a five-sided garden are shown. A hose follows AB and then turns along BC. Does it make a right-angle turn? Which other side is parallel to AB?



ANSWER _____

- 2** Design a four-sided sign with exactly two right angles and one pair of parallel sides in the box. Label its corners, mark the two right angles and name the parallel sides.

ANSWER _____

CHALLENGE One step up

A student says: If a shape has parallel sides, it must have right angles. Use a labeled shape on this sheet to test the claim. Explain.

WORK SPACE AND ANSWER

PRACTICE 1

Corner E; EF and EG are perpendicular. No pair of parallel sides.

PRACTICE 2

PQ and RS; QR and SP. It has no right angles.

PRACTICE 3

J and M are right angles. JK and ML are parallel.

PRACTICE 4

One perpendicular pair: WX and XY. Parallel pairs: WX and YZ; XY and ZW. Any adjacent pair is perpendicular.

APPLY IT 1

Yes: AB and BC are perpendicular at B. DE is parallel to AB. The turn at B is a square corner. The horizontal sides AB and DE lie on parallel lines.

CHALLENGE

False. Parallelogram PQRS has parallel opposite sides and no right angles.

Student diagrams have exact geometry but no answer-revealing angle marks. Permit a paper corner check and either order of endpoint letters. In task 6, require exactly two right angles, not a rectangle with only two marked. The sample key shows a valid sign; other correct signs are welcome.

APPLY IT 2

One valid design is the right trapezoid JKLM in the key: right angles J and M; JK parallel to ML. Accept any orientation or labels, provided the drawing has exactly two right angles and the named parallel pair is correct.

