

Corner Detectives

Use lines and angles to identify, classify and draw shapes.

GRADE 4 • 4.G.A

CCSS.Math.Content.4.G.A "Draw and identify lines and angles, and classify shapes by properties of their lines and angles."

NAME _____

DATE _____

You will need: Use a pencil and ruler. A paper corner can help check right angles. Arrowheads show where a ray or line continues. Small square marks indicate right angles; matching side ticks indicate equal lengths.

LOOK FOR DEFINING FEATURES

A segment has two endpoints. A ray has one endpoint and continues in one direction. A line continues in both directions. Parallel lines in a plane never meet; perpendicular lines meet at a right angle (90°). Acute angles are less than 90° ; obtuse angles are greater than 90° and less than 180° . A square is also a rectangle: both have four right angles.

WORKED EXAMPLE

Identify a pair of parallel sides and a pair of perpendicular sides in rectangle ABCD. Is it also a square?

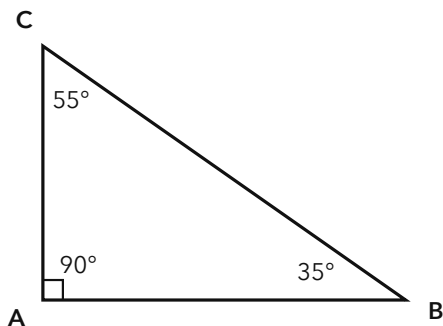


1. AB and CD run in the same direction and never meet if extended.
2. AB and AD meet at a marked right angle.
3. Adjacent sides have different lengths.

Answer: AB is parallel to CD; AB is perpendicular to AD. This rectangle is not a square.

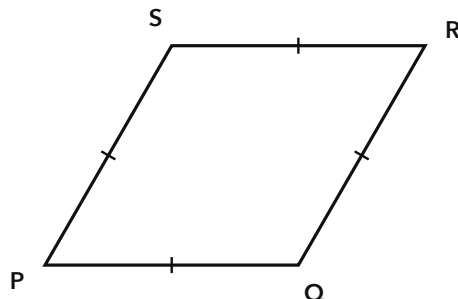
PRACTICE 4 problems

- 1** Classify triangle ABC by its angles. Name its perpendicular sides. Explain using the angle marks.



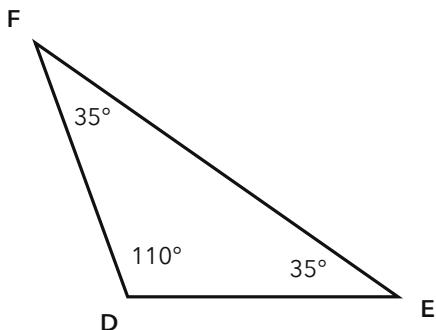
ANSWER _____

- 2** This rhombus has four equal sides. Name both pairs of parallel sides. Does it have perpendicular sides? Classify angle P as acute, right or obtuse.



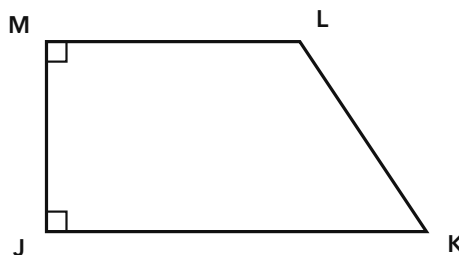
ANSWER _____

- 3** Classify triangle DEF by its angles. Explain why having one obtuse angle rules out a right angle here.



ANSWER _____

- 4** In quadrilateral JKLM, name the two right-angle vertices and its parallel sides. Is it a rectangle? Explain.



ANSWER _____

APPLY IT Show your work

- 1** A map uses point A as a meeting place. In the box, draw and label a line AB, a ray AC and a segment AD. Show the correct number of endpoints and arrowheads for each.

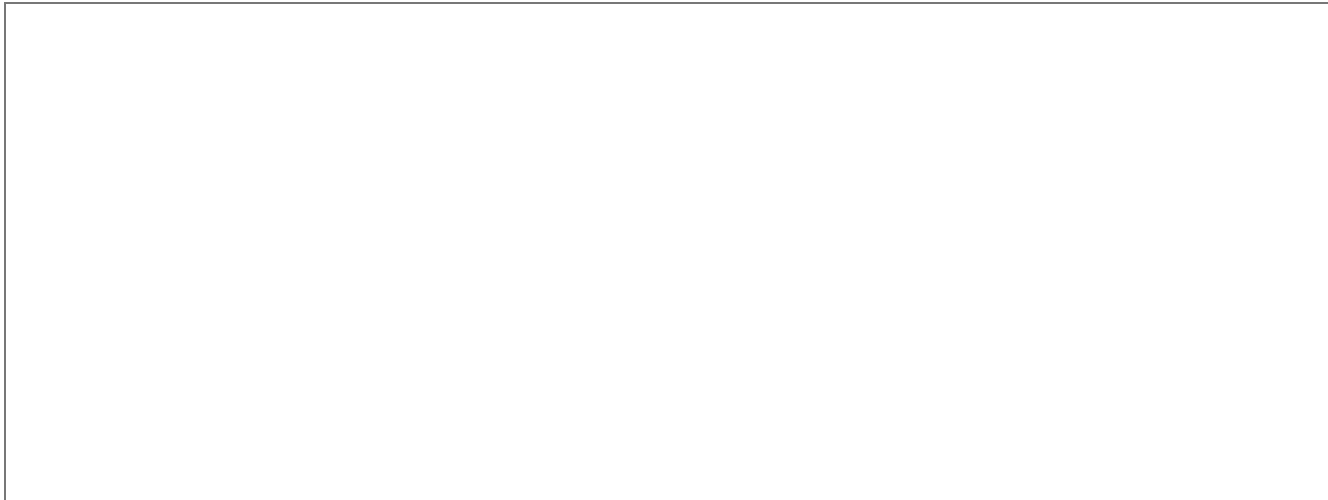
ANSWER _____

- 2** Design two signs in the box: one square and one rectangle that is not a square. Label each. Mark every right angle and show which sides are parallel.

ANSWER _____

CHALLENGE One step up

Draw a quadrilateral with exactly two right angles. Mark those angles and label any parallel sides. Explain how your drawing differs from a rectangle.



PRACTICE 1

It is a right triangle. AB and AC are perpendicular because angle A is 90° .

PRACTICE 2

PQ is parallel to RS; QR is parallel to SP. No perpendicular sides. Angle P is acute.

PRACTICE 3

It is obtuse: D is 110° . E and F are each 35° , so none is 90° .

PRACTICE 4

J and M are right angles. JK is parallel to ML. It is not a rectangle because K and L are not right angles.

APPLY IT 1

Line AB has arrowheads at both ends; ray AC has endpoint A and one arrowhead beyond C; segment AD has endpoints A and D. All three pass through or start at A. Check that B and C are named points on their line/ray, not endpoints where the arrows stop.

APPLY IT 2

Both drawings have four right angles and two pairs of parallel opposite sides. The square has four equal sides; the other rectangle has unequal adjacent sides. Accept any orientation. Students may label opposite sides with matching arrows or write the parallel pairs.

CHALLENGE

A right trapezoid is one example: exactly two adjacent right angles, one pair of parallel opposite sides, and two non-right angles. A rectangle has four right angles.

Accept rotated or reflected drawings with the same properties. Judge geometry, endpoints and arrowheads, not neatness. NOT RIGHT is not a sufficient explanation by itself: identify an acute or obtuse angle, or establish that no angle is 90° . Squares belong to the rectangle category. Marked measures and exact diagram geometry agree.

