Lesson Maker Pro

Quadrilateral Evidence Lab

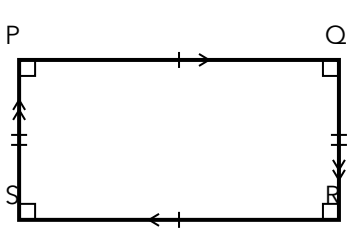
Classify, compare and mark actual figures using their properties.

4.MG.5 The student will classify and describe quadrilaterals (parallelograms, rectangles, squares, rhombi, and/or trapezoids) using specific properties and attributes. Develop definitions for parallelograms, rectangles, squares, rhombi, and trapezoids through the exploration of properties and attributes. Identify and describe points, line segments, angles, and vertices in quadrilaterals. Identify and describe parallel, intersecting, perpendicular, and congruent sides in quadrilaterals. Compare, contrast, and classify quadrilaterals (parallelograms, rectangles, squares, rhombi, and/or trapezoids) based on the following properties and attributes: parallel sides; perpendicular sides; congruence of sides; and number of right angles. Denote properties of quadrilaterals and identify parallel sides, congruent sides, and right angles by using geometric markings. Use symbolic notation to name line segments and angles in quadrilaterals.

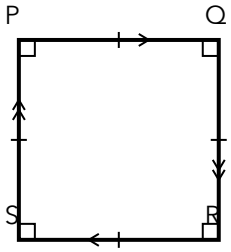
NAME _____ **DATE** _____

Read the figures

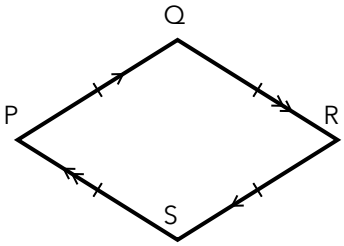
Read the markings and the given properties, not page orientation. A,B have four right angles; B,C have four congruent sides; A–D have two pairs of parallel opposite sides; E has exactly one pair. Matching ticks show congruent sides; arrow marks show parallel sides; small squares show right angles. Here a trapezoid has exactly one pair of parallel sides.



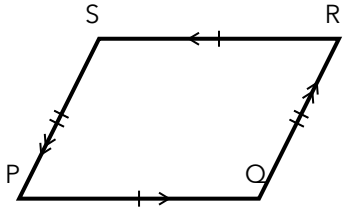
A



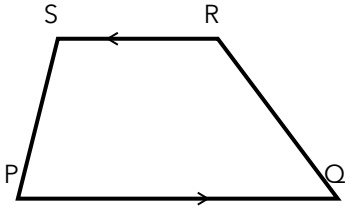
B



C



D



E

Explain and construct

Classify every figure using ALL applicable names: quadrilateral, parallelogram, rectangle, rhombus, square, trapezoid. Explain why a square belongs to more than one family.

Figure	All applicable families	Evidence
A	_____	_____
B	_____	_____
C	_____	_____
D	_____	_____
E	_____	_____

Draw and label a nonsquare rectangle WXYZ. Mark both parallel-side pairs with distinct arrow styles, both congruent-side pairs with distinct tick styles, and all right angles with small squares. Explain each mark using segment or angle names.

Draw a rhombus that is not a square. Explain why it is a parallelogram but not a rectangle.

Teacher Key

A:quadrilateral,parallelogram,rectangle. B:quadrilateral,parallelogram,rectangle,rhombus,square. C:quadrilateral,parallelogram,rhombus. D:quadrilateral,parallelogram. E:quadrilateral,trapezoid under the stated exclusive convention. Shape names are inclusive within the parallelogram family.

Diagonal table A:congruent yes,perpendicular no,bisect yes. B:yes,yes,yes. C:no,yes,yes. D:no,no,yes. Every parallelogram's diagonals bisect each other; rectangles have congruent diagonals, rhombi perpendicular diagonals; squares satisfy both. A particular drawing alone is not proof for every family member.

Figure A vertices P,Q,R,S; sides PQ,QR,RS,SP. ∠PQR and ∠QRS are examples of angle names. PQ/QR meet perpendicularly at Q. Tick pairs PQ=RS and QR=SP; parallel pairs PQ∥RS and QR∥SP; all four corners are right. A missing mark alone does not establish a false property.

Organizer: square is the rectangle/rhombus overlap; B there,A rectangle-only,C rhombus-only,D in parallelograms outside both,E in quadrilaterals outside parallelograms. Check new drawings, labels and marks. A vertex is a point where sides meet; a segment has two endpoints; an angle is formed by two rays sharing a vertex.

Virginia convention source: VDOE Properties of Quadrilaterals instructional plans, https://www.doe.virginia.gov/home/showpublisheddocument/16276/638036740201330000 .