Classifying 2D Figures

Apply the skill to decisions and designs

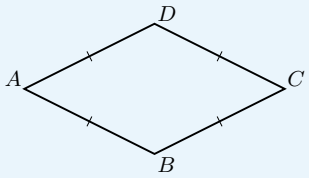
Name _____ **Date** _____ **Score** _____ / 6

QUICK REVIEW

Classify using attributes, not the direction a shape faces. A rectangle has 4 right angles; a square has 4 right angles and 4 equal sides, so every square is a rectangle. A parallelogram has 2 pairs of parallel sides. Here trapezoid means exactly 1 parallel pair. A right triangle has one $90°$ angle; an acute triangle has three acute angles.

Worked example

Name this figure as specifically as possible and give its attributes.

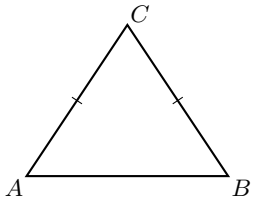


1. The figure has 4 sides, so it is a quadrilateral.
2. It has 2 pair(s) of opposite parallel sides and 0 right angles.
3. Four equal side marks make a rhombus; the angles need not be right angles.
Answer: Rhombus.

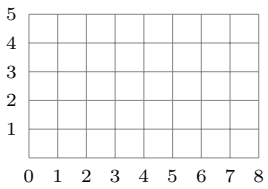
Practice Problems

Show your thinking.

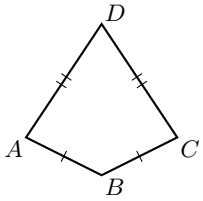
1. A logo uses a triangle with all three openings smaller than a right angle. Classify it.



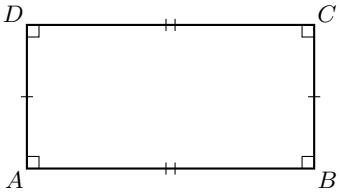
2. Design a tile that is both a rectangle and a rhombus. Draw it on the grid and name it.



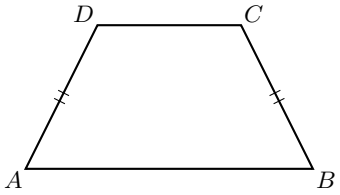
3. A badge has two adjacent equal-side pairs marked. Identify its shape.



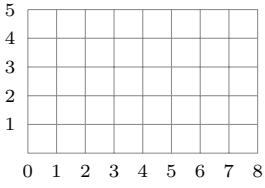
4. A designer says rotating a rectangle makes it stop being a rectangle. Explain the error.



5. A bridge panel has exactly one pair of parallel edges. Classify the panel.



6. Draw a quadrilateral with 2 pairs of parallel sides and no right angles. Name its broad family.



Answer Key

1. Acute triangle.
2. A square, for example 3 by 3 grid units.
3. Kite.
4. Rotation keeps it a rectangle.
5. Trapezoid.
6. For example, a slanted parallelogram.

Step-by-Step Solutions

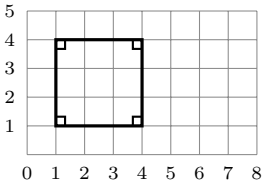
Follow each calculation, then check your own work.

Problem 1

1. The figure has 3 straight sides, so it is a triangle.
2. It has 0 right angle(s) and 0 obtuse angle(s).
3. Every opening is less than $90°$, so this is an acute triangle.

Problem 2

1. Being a rectangle requires 4 right angles.
2. Being a rhombus requires 4 equal sides.
3. A 3 by 3 square satisfies both conditions.



Problem 3

1. The figure has 4 sides, so it is a quadrilateral.
2. It has 0 pair(s) of opposite parallel sides and 0 right angles.
3. Two pairs of adjacent equal sides make a kite.

Problem 4

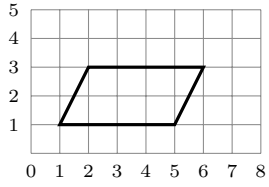
1. Before rotation, the figure has 4 right angles.
2. Turning the paper changes directions but preserves those 4 openings and the side lengths.
3. The defining 4 right angles remain, so the name remains rectangle.

Problem 5

1. The figure has 4 sides, so it is a quadrilateral.
2. It has 1 pair(s) of opposite parallel sides and 0 right angles.
3. Exactly one pair of parallel sides makes a trapezoid under the definition used here.

Problem 6

1. Choose corners at (column, row) positions $(1, 1), (5, 1), (6, 3), (2, 3)$.
2. The top and bottom are horizontal; the two slanted sides have the same direction.
3. The two parallel pairs make a parallelogram; the slanted corners are not $90°$.



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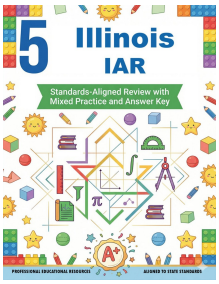

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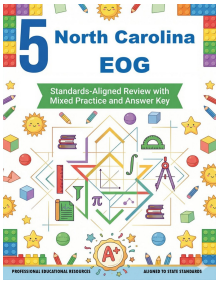

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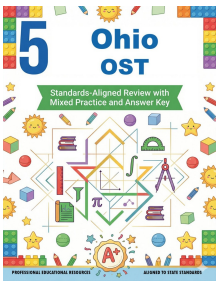

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