Line of Symmetry

Spot mistakes, reason, and work backward

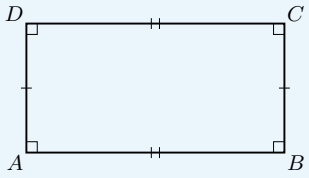
Name _____ **Date** _____ **Score** _____ / 6

QUICK REVIEW

A line of symmetry is a fold that makes both halves match exactly. Corresponding points lie the same distance from the fold. A non-square rectangle has 2 symmetry lines; a square has 4. Equal area on each side alone is not enough: the outlines must match.

Worked example

Find all lines of symmetry of this figure.



1. The vertical center fold pairs the left and right sides.

2. The horizontal center fold pairs the top and bottom sides.

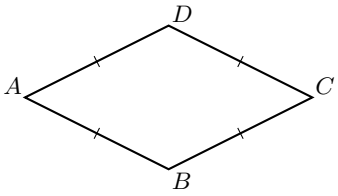
3. The diagonals do not match long sides to long sides, so there are 2 symmetry lines.

Answer: 2 line(s) of symmetry.

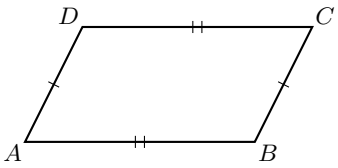
Practice Problems

Show your thinking.

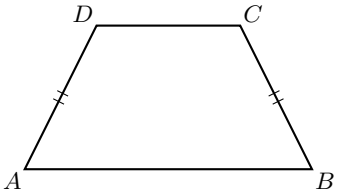
1. Find the matching diagonal folds of this non-square rhombus.



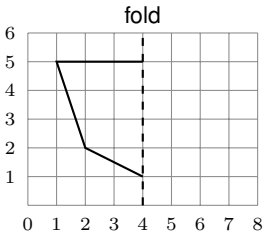
2. A child calls every parallelogram symmetric. Use this non-rectangle to test the claim.



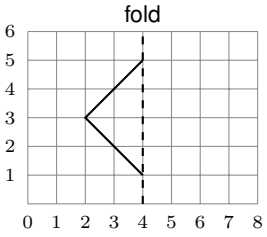
3. Find the only fold that preserves both unequal parallel bases.



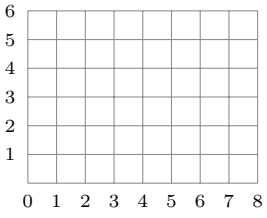
4. Create the missing half of this design by matching distances from the fold.



5. A point is 2 grid squares left of a vertical symmetry line. Where must its partner be?



6. Draw a triangle on this grid with exactly one vertical line of symmetry. Mark the line.



Answer Key

1. 2 line(s) of symmetry.

2. 0 line(s) of symmetry.

3. 1 line(s) of symmetry.

4. Reflect each shown corner across the dashed fold; join the reflected corners in the same order.

5. 2 grid squares right, at the same height.

6. For example, corners at column/row $(1, 1), (7, 1), (4, 5)$ with fold column 4.

Step-by-Step Solutions

Follow each calculation, then check your own work.

Problem 1

1. Each diagonal passes through opposite vertices.

2. Folding along either diagonal pairs equal adjacent sides.

3. There are 2 diagonal symmetry lines; horizontal/vertical here are those diagonals.

Problem 2

1. The figure has unequal adjacent sides and slanted corners.

2. A vertical fold does not pair its offset top and bottom corners.

3. Neither a diagonal nor a center fold matches every edge, so there are 0 symmetry lines.

Problem 3

1. The left and right slanted sides are equal and equally placed.

2. A vertical center fold matches both bases to themselves and one slanted side to the other.

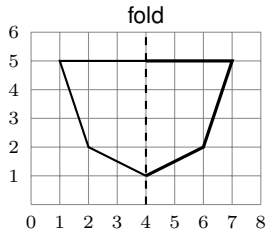
3. A horizontal fold would swap unequal bases, so there is only 1 symmetry line.

Problem 4

1. The shown corner at column 2, row 2 is $4 - 2 = 2$ squares left of the fold.

2. Its partner is 2 squares right of the fold, at column $4 + 2 = 6$, row 2.

3. Repeat the equal-distance construction for every corner; corners on the fold stay fixed. Join corresponding segments.



Problem 5

1. Reflection keeps the perpendicular distance to the fold equal.

2. The partner therefore uses 2 squares on the other side.

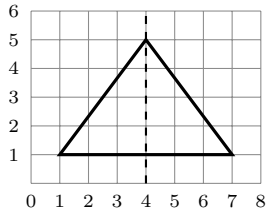
3. The two points are $2 + 2 = 4$ squares apart on the same row.

Problem 6

1. The base corners lie 3 squares to either side of column 4.

2. The top corner lies on column 4, so it stays fixed.

3. The fold matches the two slanted sides; this isosceles triangle has 1 symmetry line.



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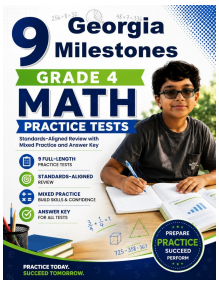

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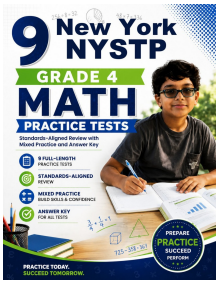

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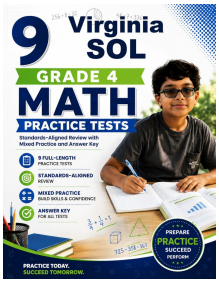

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