Recognising reflection symmetry and counting axes

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Name: _____ Class: _____ Date: _____

Worked example

1

A rectangle has unequal adjacent side lengths. Find all of its symmetry axes and explain why its diagonals are excluded.



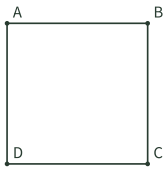
Geometry diagram; not drawn to scale except for construction tasks.

Guided attempt

2

Draw every symmetry axis of the square. Use the scaffold to ensure that no type of line is missing.

1. First draw the two lines through opposite side midpoints.
2. Then test lines through opposite vertices.
3. Extend each axis beyond the square and check the total.



Geometry diagram; not drawn to scale except for construction tasks.

Prerequisite

3

Which test defines reflection symmetry for a single figure?

A. The figure looks balanced from a distance.
B. Any two parts have equal areas.
C. Folding along a line makes the whole figure coincide.
D. The figure contains two equal sides somewhere.

Prerequisite

4

A pupil draws a short segment inside a symmetric figure and calls it the whole symmetry axis. Which correction is appropriate?

A. An axis must be a curved line.
B. Every internal segment is an axis.
C. An axis cannot pass through the figure.
D. Extend it in both directions: the axis is a full line.

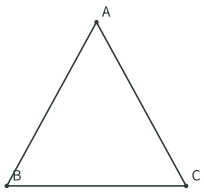
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Independent practice 5

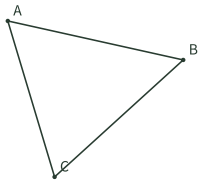
AB=AC, but △ABC is not equilateral. How many symmetry axes does it have?



Geometry diagram; not drawn to scale except for construction tasks.

Independent practice 6

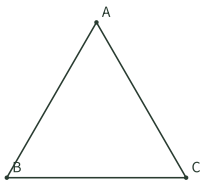
All three side lengths of a triangle differ. How many symmetry axes does it have?



Geometry diagram; not drawn to scale except for construction tasks.

Independent practice 7

Find the number of symmetry axes of an equilateral triangle and state where each passes.



Geometry diagram; not drawn to scale except for construction tasks.

Independent practice 8

For a non-square rectangle, a pupil counts both diagonals as axes. Which reason shows the error?

A. Diagonals never occur in any symmetry axis.

B. A rectangle has no symmetry axes.

C. Every diagonal has to be horizontal.

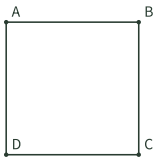
D. A diagonal fold would match unequal adjacent sides, so the whole figure does not coincide.



Geometry diagram; not drawn to scale except for construction tasks.

Exit question 9

Without looking at the worked example, count all symmetry axes of a square.



Geometry diagram; not drawn to scale except for construction tasks.

Exit question 10

Two figures are congruent. Does this fact alone prove that they are reflections of one another in a single line? Explain what still must be checked.