Year 4 maths: Lines of symmetry (Hard)

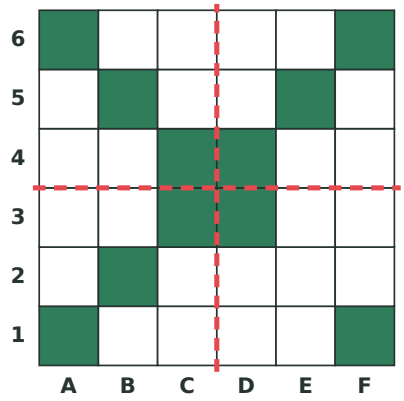
Maths · Shapes and space
Level: Hard

Student: _____ Date: _____

Instructions
- There are 10 questions. Read each one carefully.
- Write your answers on this paper. Use the space under a question to work it out.
- A grown-up can read a question aloud — that's fine.
- The answers are at the end. Check them together when you have finished.

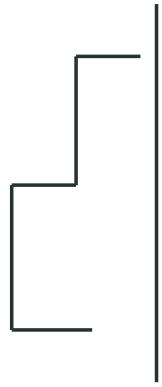
Questions

1. One square is missing. Write the square that makes both dashed lines lines of symmetry.



2. Kirra draws this bent line next to a mirror line. She wants to draw its reflection on the right-hand side of the mirror line. Which picture shows the reflection?

Circle one answer.





○ **A**



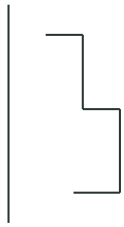
○ **B**



○ **C**



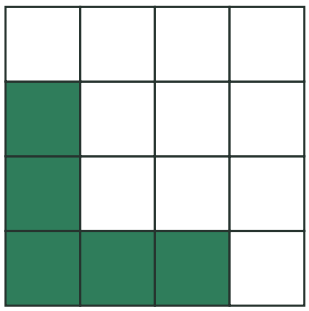
○ **D**

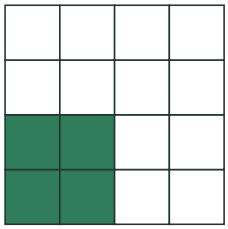


○ **E**

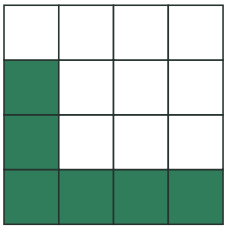
3. Jasper's paper is an L shape made of 5 squares. He makes one fold, without moving the paper in any other way. Which of these COULD be the result?

Circle one answer.

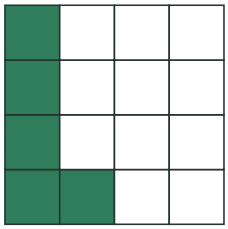




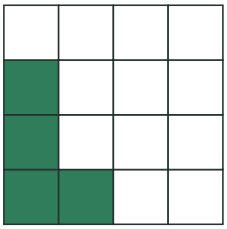
○ **A**



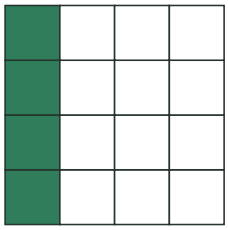
○ **B**



○ **C**



○ **D**



○ **E**

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4. Letters are written on a square grid. The square is folded on the dashed line across the middle, with the bottom half going up behind. Then the rectangle is folded in half again on the up-and-down line, with the right half going behind. Which of these letters is behind the letter R?

Circle one answer.

M	A	P	S
E	R	I	C
T	O	W	N
B	L	U	F

○ **1** W ○ **2** C ○ **3** F ○ **4** A ○ **5** L

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5. Letters are written on a square grid. The left half is folded over behind the right half on the up-and-down line. Then the bottom half is folded up behind on the line across the middle. Which of these letters is behind the letter S?

Circle one answer.

B	F	L	R
C	H	N	S
D	J	P	T
E	K	Q	V

○ **A** N ○ **B** K ○ **C** ○ **D** H ○ **E** V

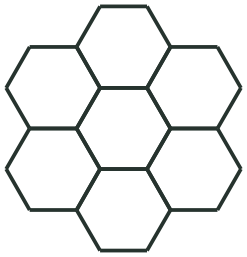
6. Which of these letters has the greatest number of lines of symmetry?

Circle one answer.

○ **1** U ○ **2** E ○ **3** N ○ **4** S ○ **5** H

7. Seven identical hexagons are joined: one in the middle with six around it. How many lines of symmetry does the shape have?

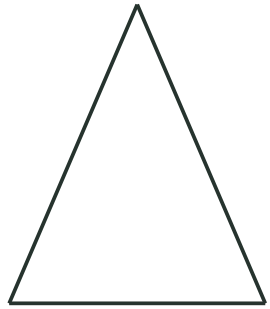
Circle one answer.

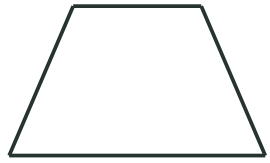


○ **A** 6 ○ **B** 12 ○ **C** 3 ○ **D** 4 ○ **E** 2

8. Ruby starts with a paper triangle with two equal sides. She makes one fold in the paper, without moving it in any other way. Which of these could NOT be the result?

Circle one answer.

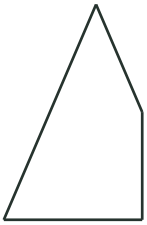




○ **A**



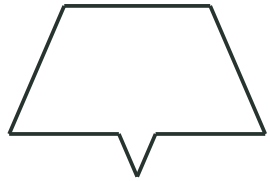
○ **B**



○ **C**



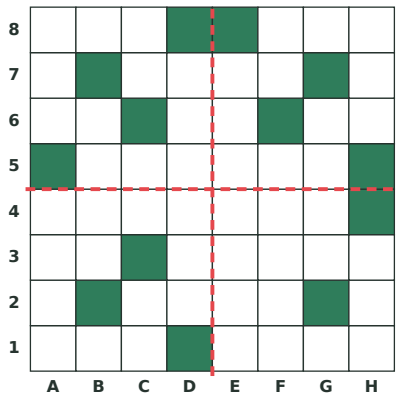
○ **D**



○ **E**

9. Ngaio is shading squares on the grid. She wants both dashed lines to be lines of symmetry: each square on the left must reflect to a square on the right, and each square at the top must reflect to a square at the bottom. Which squares does Ngaio still need to shade?

Circle one answer.



○ **A** 4A, 1E, 3F

○ **B** A4, E1, F3

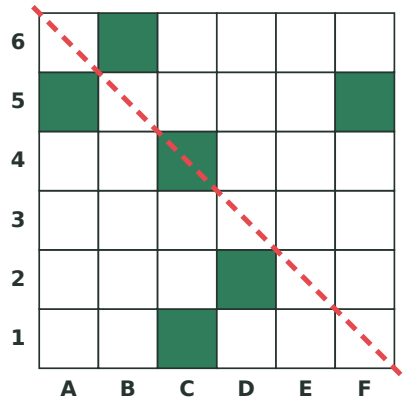
○ **C** B4, E1, F3

○ **D** A1, E1, F3

○ **E** A4, E1, F2

10. Noah is to shade three more squares so the dashed line is a line of symmetry. Which squares does he need to shade?

Circle one answer.



○ **A** B1, F4 and E3

○ **B** E6, A3 and B4

○ **C** A5, D1 and C2

○ **D** B2, F4 and E3

○ **E** B1, F4 and B6

Answer key

Year 4 maths: Lines of symmetry (Hard) · Sheet 171068

1. E2

B5 needs E5, B2 and E2. E5 and B2 are shaded, E2 is not. Every other square already has its three partners.

2. B

Each corner flips straight across the mirror and lands the same distance away on the other side, at the same height. The end that touches the mirror near the top stays near the mirror, and the long drop is furthest away.

3. D

Fold the end square of the foot back onto the square next to it: the L now has a foot 1 square long. A fold always puts paper on top of paper, so the result covers fewer than 5 squares: the 5- and 6-square shapes are out. No single fold can make the 2 by 2 block or the column of 4.

4. 1 — W

R is in the second row, second column. The first fold flips the bottom half up: O lands behind R. The second fold flips the right half over: I and W land behind as well. So R, O, I and W are in one pile. Of the choices, only W.

5. C

S is in the second row, last column. The first fold flips C (second row, first column) behind it. The second fold flips the third row up, bringing T and D behind too. The pile is S, C, T and D: of the choices, only C.

6. 5 — H

H folds up and down and across: 2 lines. E (across) and U (up and down) have 1. S and N look the same after a half turn, but no fold works: 0.

7. A — 6

The shape matches itself on the same 6 folds as one hexagon: 3 through opposite corners of the middle hexagon and 3 through the middles of opposite sides. So 6 lines.

8. D

Fold down the middle: a triangle with a square corner. Fold the top point down to the bottom edge: a four-sided shape with a flat top. Fold one corner in: a shape with one upright side. Fold the top down past the bottom: the point sticks out. A rectangle needs both slanting sides made upright, and one fold can only change one part, so it needs at least two folds.

9. B — A4, E1, F3

Check every shaded square in both lines. A5 flips across the across line to A4. D1 flips across the up-and-down line to E1. C3 flips across the up-and-down line to F3. Every other square already has its partners. So Ngaio shades A4, E1 and F3.

10. A — B1, F4 and E3

A5 and B6 are partners, and C4 is on the line. F5 needs B1, C1 needs F4 and D2 needs E3.