

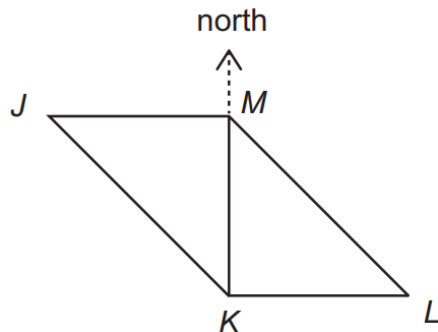


Topic 14 - Direction & 2D Shapes

1

Bryony draws two right-angled isosceles triangles on the playground to make a parallelogram.

She labels the corners J , K , L and M .



The direction of north is shown.

Bryony walks along the sides of the parallelogram, from J to K to L to M .

Starting from J , which order of compass directions does she follow?

- A** SE, then E, then NW
- B** SE, then W, then NW
- C** S, then E, then N, then W
- D** SW, then E, then NE
- E** SW, then W, then NE



2

Brody is thinking of a quadrilateral.

The quadrilateral has:

- 1 no parallel sides
- 2 two sides of 5 cm and two sides of 8 cm
- 3 exactly one right angle

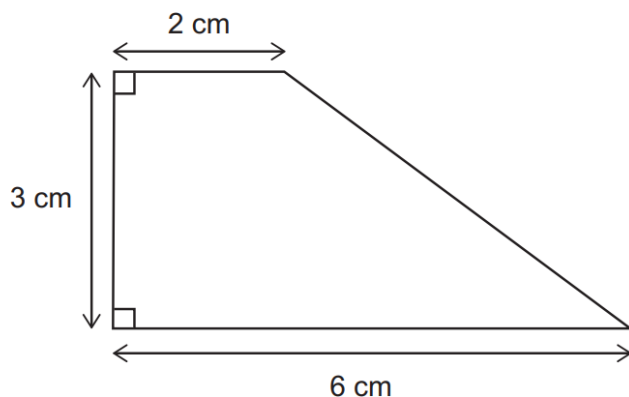
How many lines of symmetry does Brody's quadrilateral have?

- A 0
- B 1
- C 2
- D 3
- E 4



3

This shape is a trapezium with two right angles:



[diagram not to scale]

Anna has a square piece of card with side length 24 cm.

What is the greatest possible number of these trapeziums Anna can cut out from this card?

- A 16
- B 24
- C 32
- D 48
- E 64



4

A robot is facing south-east.

It makes 58 quarter-turns clockwise, then 93 quarter-turns anti-clockwise.

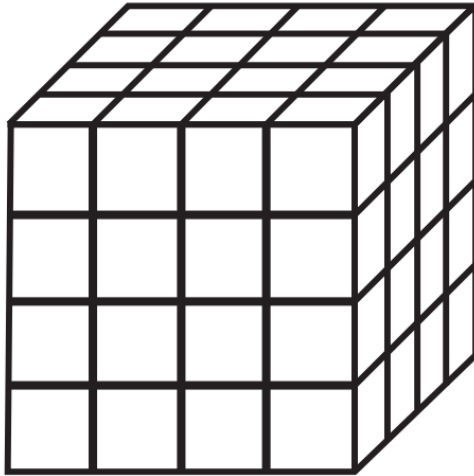
In which direction is the robot now facing?

- A** north
- B** north-east
- C** north-west
- D** south-east
- E** south-west



5

Tiffany makes a large cube out of 64 identical small cubes:



She can pick it up and look at it from any direction.

How many of the 64 small cubes can she **not** see?

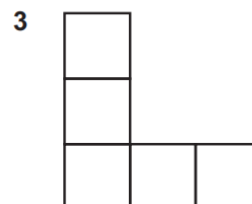
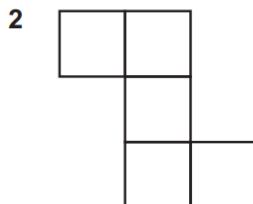
- A 0
- B 8
- C 24
- D 27
- E 32



6

Vinayak's little brother tried to draw three different nets of a cube, but he got it wrong. He only drew five squares for each net, but a complete cube net has six squares.

Here are his three drawings:



Vinayak wants to help, by adding **one more square** to each net to make a correct cube net. However, he is not sure if this is possible for all of the drawings.

Which of the three drawings can be made into complete cube nets by adding one square?

- A drawing 1 only
- B drawing 2 only
- C drawing 3 only
- D drawings 1 and 3 only
- E drawings 1, 2 and 3




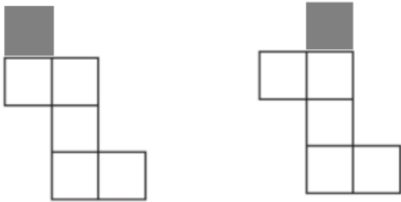
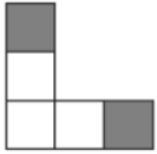
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Answer Key

1	A
2	B
3	D
4	E
5	B
6	<p>If we imagine folding each partial net into a cube, then we can decide whether any faces will overlap or if it's possible to add an extra square to make a complete net.</p> <p> For drawing 1, the two shaded squares would overlap if we try to fold it into a cube, so the net cannot be completed with a single square.</p> <p>It is possible to add a square to drawing 2 to make a valid net of a cube:</p> <p></p> <p> For drawing 3, as with drawing 1, if we try to fold it into a cube, the two shaded faces will overlap, so it's not possible to add just one more square to make a valid cube net.</p> <p>So the correct answer is B drawing 2 only.</p>