4.10 Fold and Punch: Test Pack

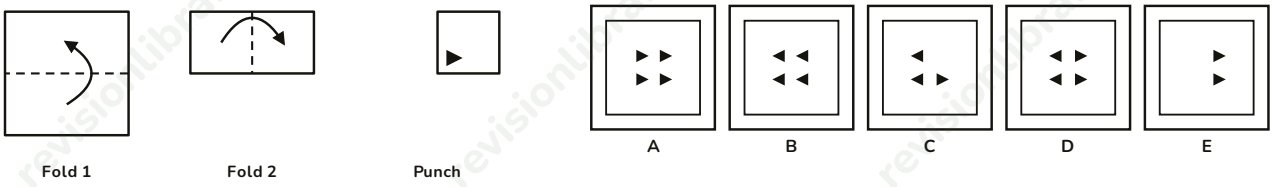
GL ASSESSMENT 11+ NVR · Calculators not allowed · about 60 minutes

Total Marks

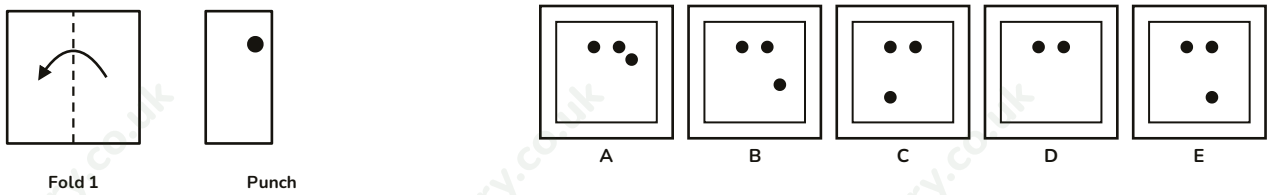
Name: _____ Date: ____ / ____ / _____

Answer ALL questions. Show all your working.

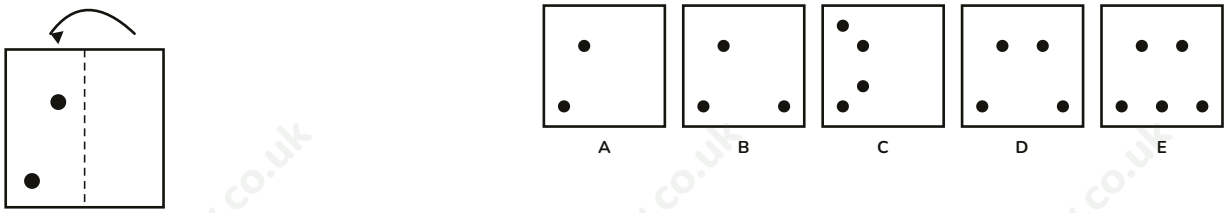
1 A square sheet of paper is folded as shown in the steps, with the dashed line and curved arrow showing each fold. A hole is then punched through all the layers at the place shown. Which of the options A to E shows the sheet opened out flat again, with every hole in its correct position?



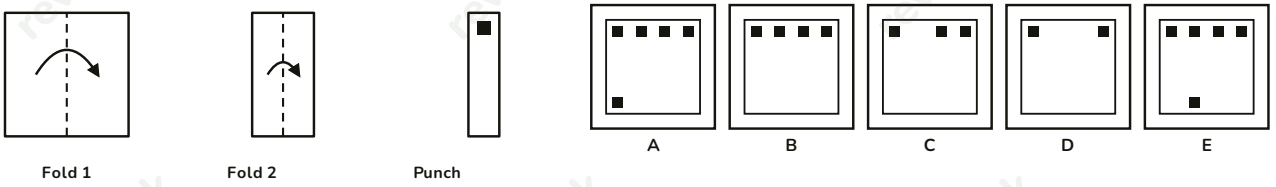
2



3 Study the square sheet of paper described below. It is folded as described, in the direction shown by the arrow(s), and a hole (or holes) is punched through all the layers at the point(s) marked. Which of the options A to E shows the sheet of paper fully opened out flat again, with every resulting hole shown in its correct position?



4 A square sheet of paper is folded as shown in the steps, with the dashed line and curved arrow showing each fold. A hole is then punched through all the layers at the place shown. Which of the options A to E shows the sheet opened out flat again, with every hole in its correct position?

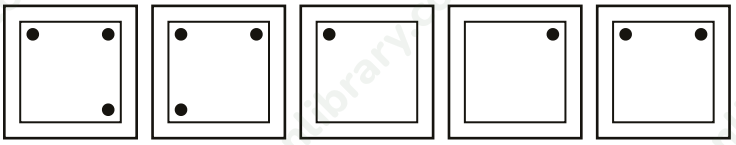


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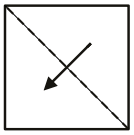
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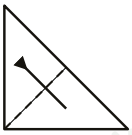

Fold 1


Punch

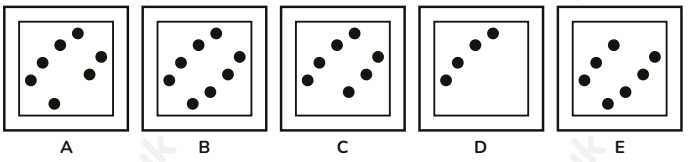


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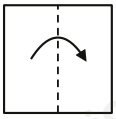

Fold 1


Fold 2


Punch



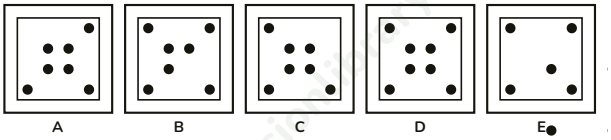
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Fold 1

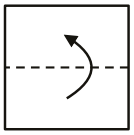

Fold 2


Fold 3


Punch

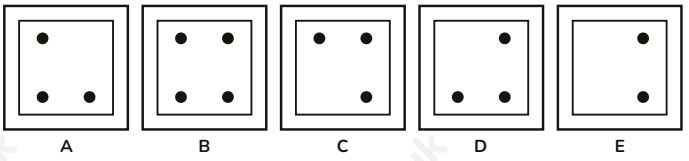


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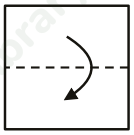

Fold 1

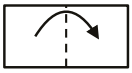

Fold 2


Punch

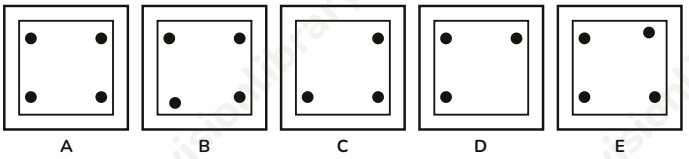


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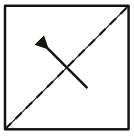

Fold 1

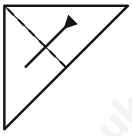

Fold 2

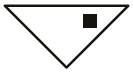

Punch

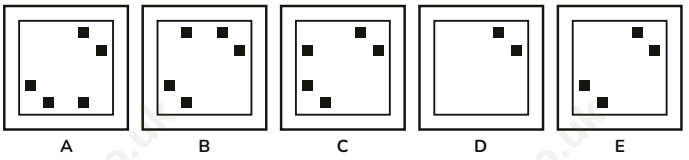


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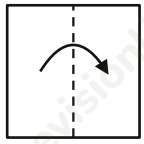

Fold 1


Fold 2

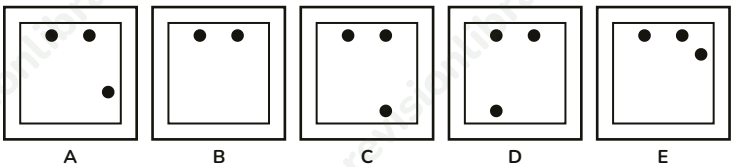

Punch



11

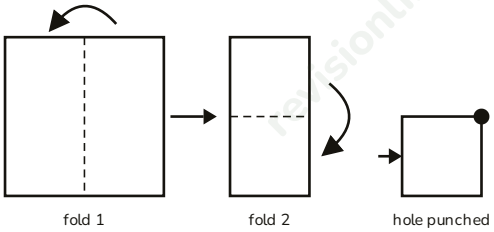

Fold 1

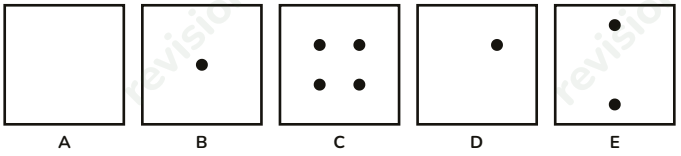

Punch



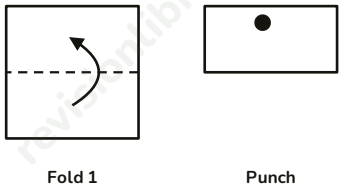
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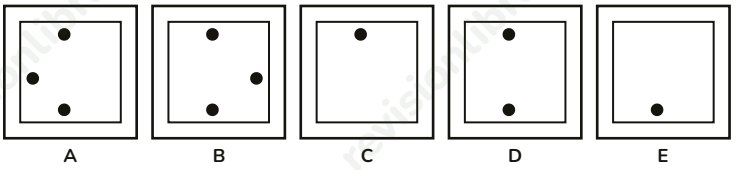
12 Study the square sheet of paper described below. It is folded as described, in the direction shown by the arrow(s), and a hole (or holes) is punched through all the layers at the point(s) marked. Which of the options A to E shows the sheet of paper fully opened out flat again, with every resulting hole shown in its correct position?



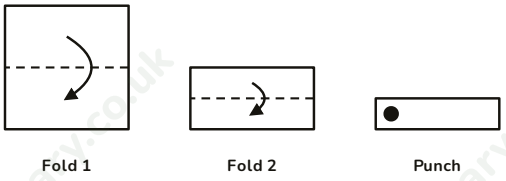


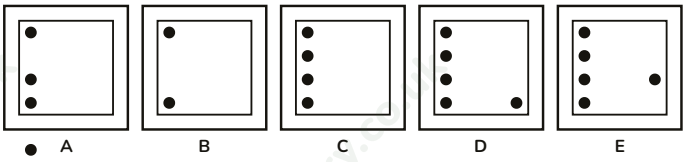
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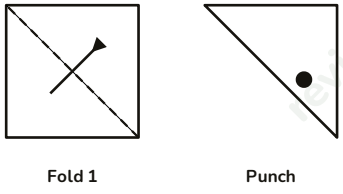


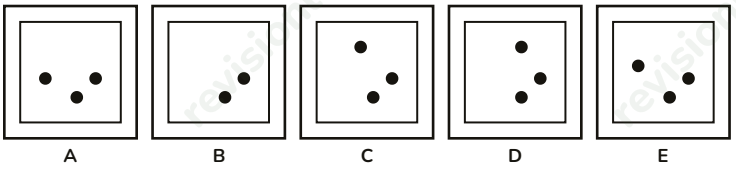
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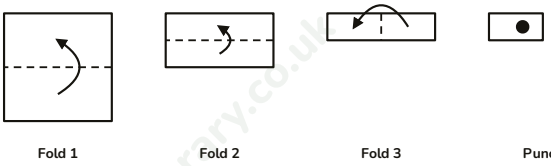


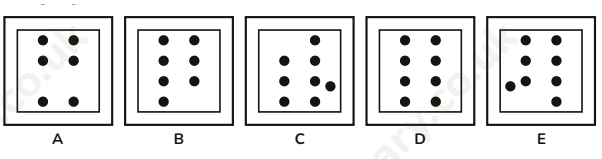
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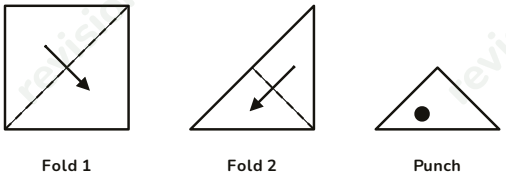


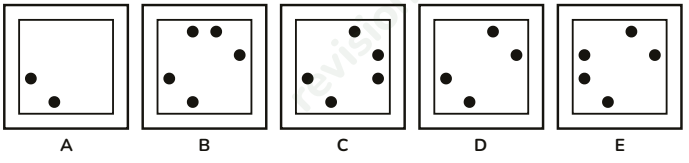
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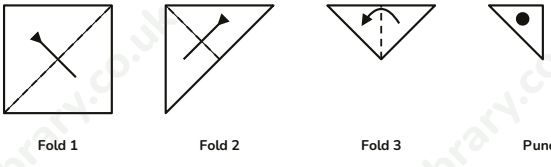


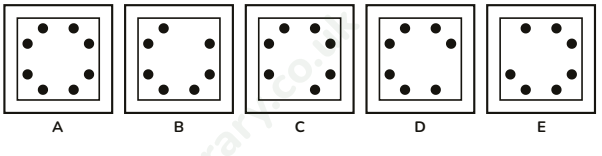
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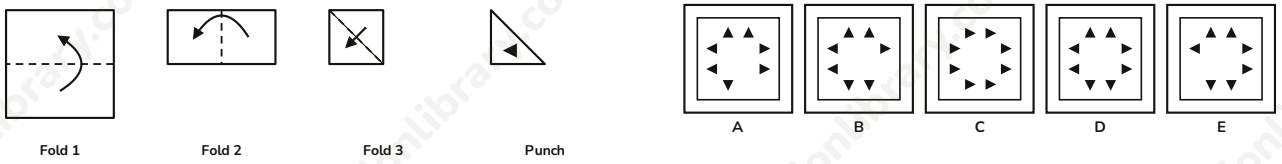
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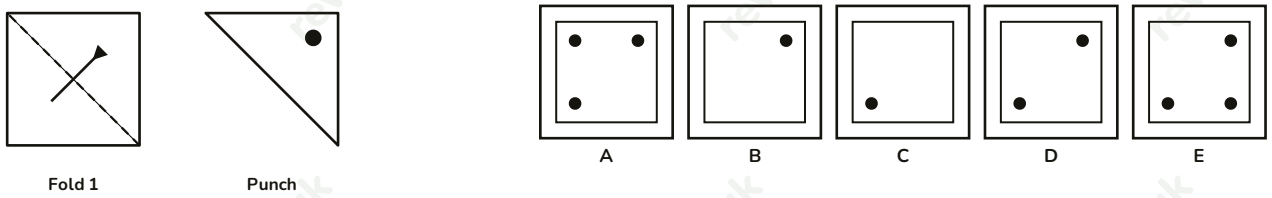


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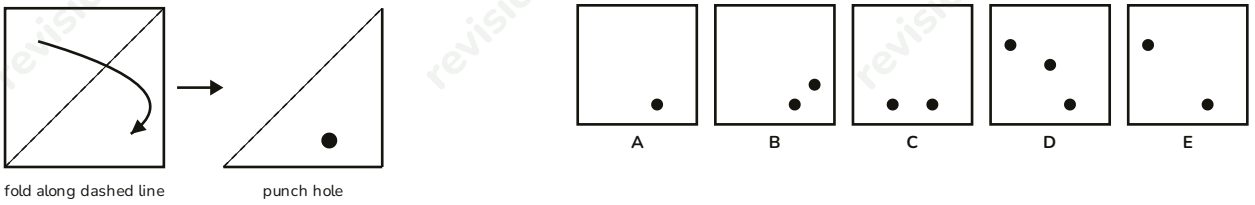
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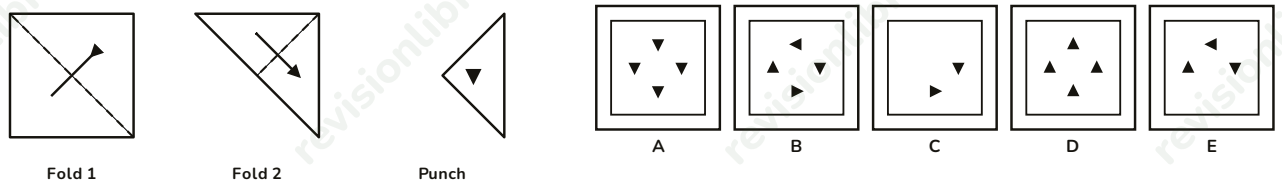
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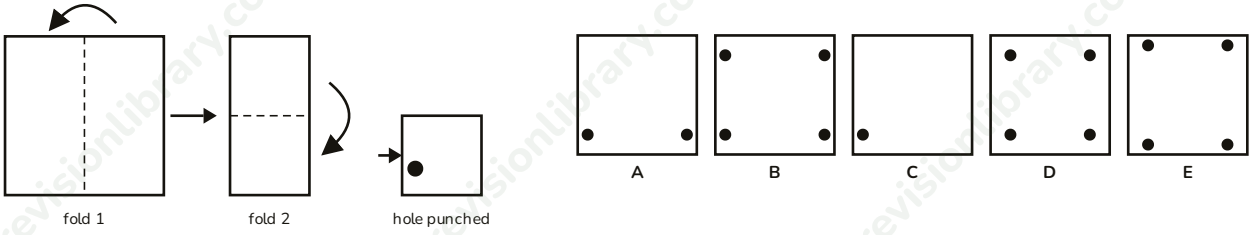
21 Study the square sheet of paper described below. It is folded as described, in the direction shown by the arrow(s), and a hole (or holes) is punched through all the layers at the point(s) marked. Which of the options A to E shows the sheet of paper fully opened out flat again, with every resulting hole shown in its correct position?



22 A square sheet of paper is folded as shown in the steps, with the dashed line and curved arrow showing each fold. A hole is then punched through all the layers at the place shown. Which of the options A to E shows the sheet opened out flat again, with every hole in its correct position?

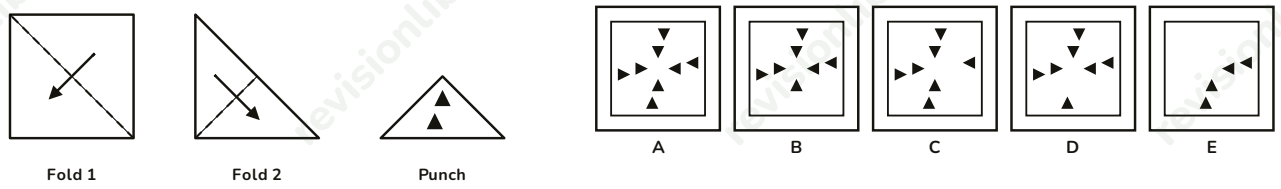


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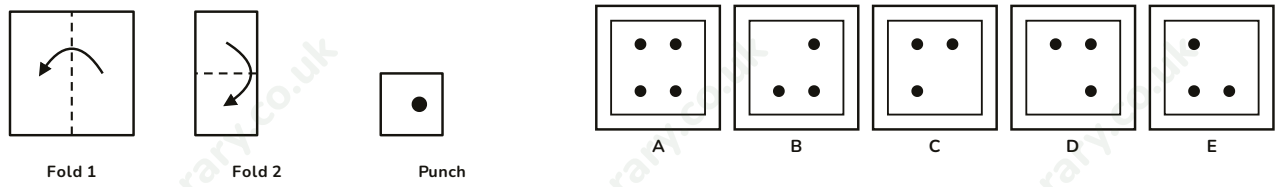


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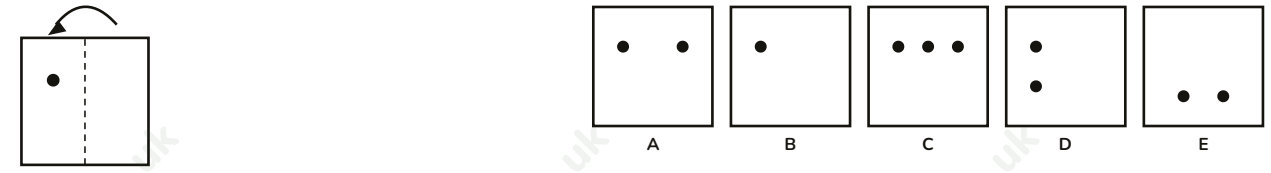
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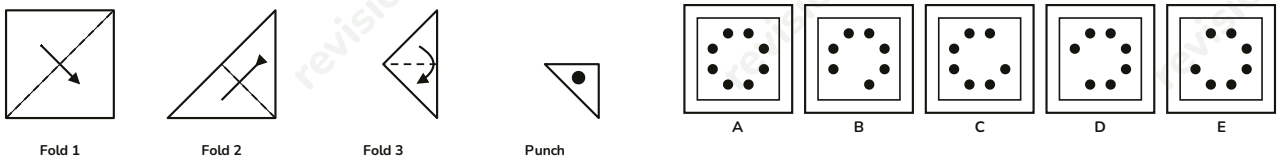
25



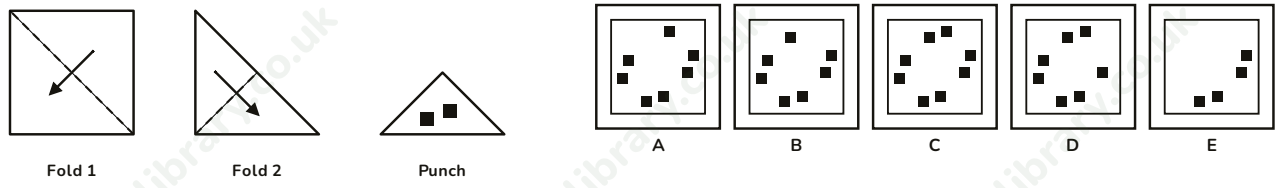
26 Study the square sheet of paper described below. It is folded as described, in the direction shown by the arrow(s), and a hole (or holes) is punched through all the layers at the point(s) marked. Which of the options A to E shows the sheet of paper fully opened out flat again, with every resulting hole shown in its correct position?



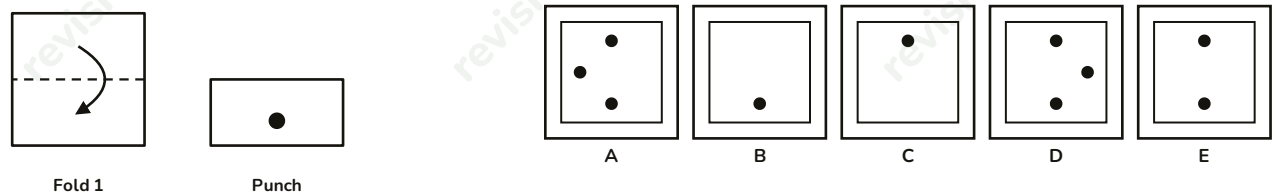
27 A square sheet of paper is folded as shown in the steps, with the dashed line and curved arrow showing each fold. A hole is then punched through all the layers at the place shown. Which of the options A to E shows the sheet opened out flat again, with every hole in its correct position?



28

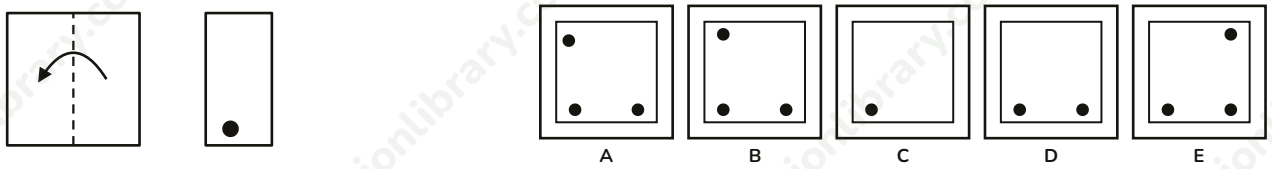


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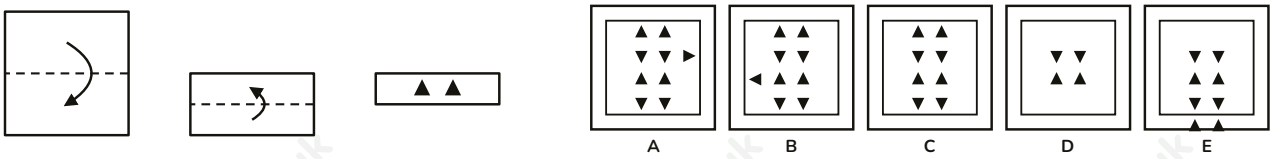


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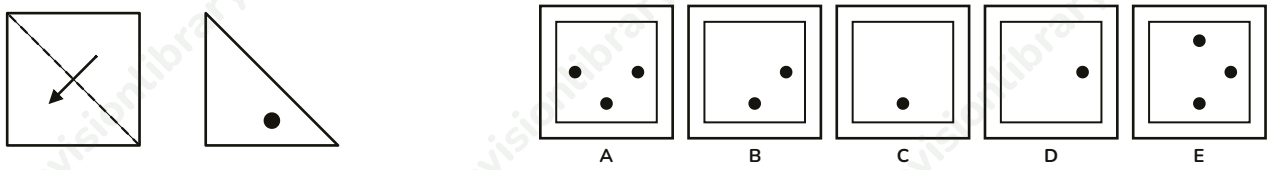
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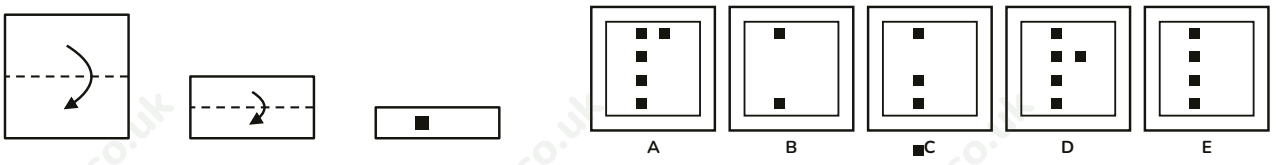
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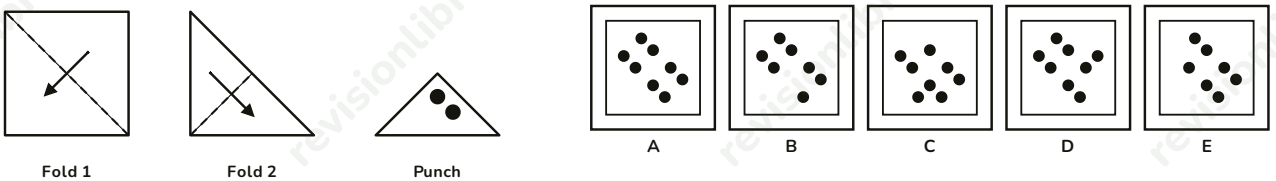
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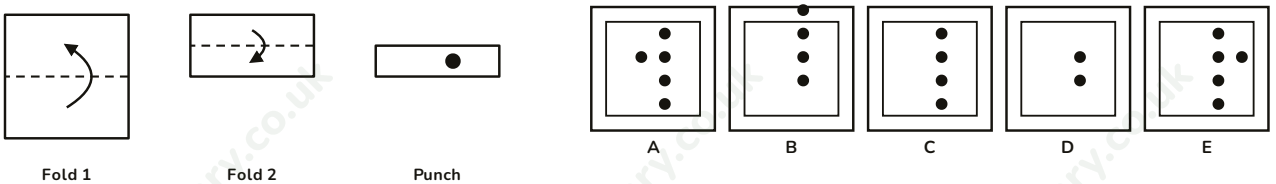
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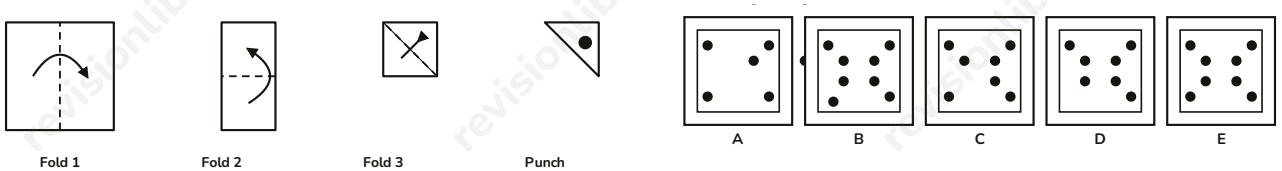
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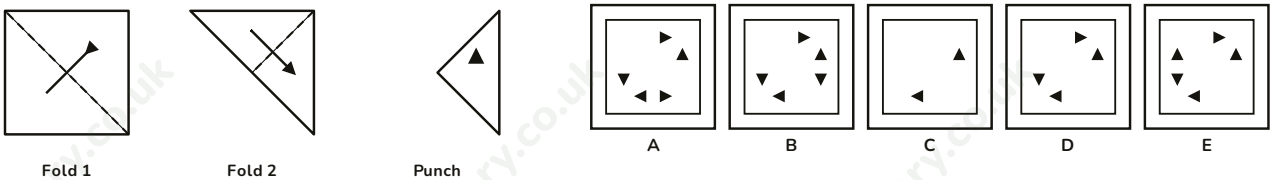
35



36

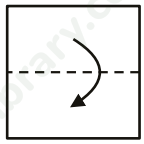


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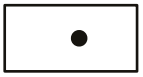


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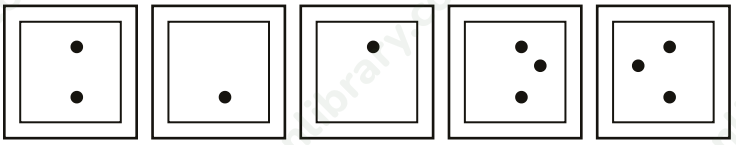
38



Fold 1

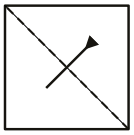


Punch

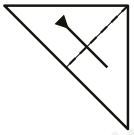


A B C D E

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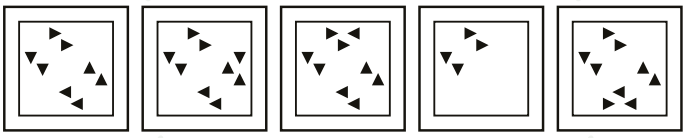
Fold 1



Fold 2



Punch



A B C D E

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Mark scheme · 4.10 Fold and Punch: Test Pack

Question 1

Option D is correct: exactly 4 solid black triangles centred at (3 cm, 3 cm) pointing left; (3 cm, 5 cm) pointing left; (5 cm, 3 cm) pointing right; (5 cm, 5 cm) pointing right. Option A is wrong: the triangles have not been reflected with the paper. Option E is wrong: the last fold has not been unfolded (the holes from the final reflection are missing). Option C is wrong: a hole is missing. Option B is wrong: the triangles have not been reflected with the paper. **B1**

Answer: D) A 8 cm by 8 cm square, fully unfolded and flattened out, showing exactly 4 solid black triangles centred at (3 cm, 3 cm) pointing left; (3 cm, 5 cm) pointing left; (5 cm, 3 cm) pointing right; (5 cm, 5 cm) pointing right.

Question 2

Option D is correct: exactly 2 solid black circles centred at (3 cm, 6 cm); (5 cm, 6 cm). Option B is wrong: there is a hole too many. Option C is wrong: there is a hole too many. Option E is wrong: there is a hole too many. Option A is wrong: there is a hole too many. **B1**

Answer: D) A 8 cm by 8 cm square, fully unfolded and flattened out, showing exactly 2 solid black circles centred at (3 cm, 6 cm); (5 cm, 6 cm).

Question 3

Option A is wrong: it shows only the two original punched holes, with neither one reflected across the fold line. Option B is wrong: it reflects only one of the two punched holes across the fold line, and omits the mirror image of the other. Option C is wrong: it reflects both holes, but across the wrong axis of the square. Option D is correct: exactly 4 solid black holes (each 0.6cm diameter): one centred 1cm from the left edge and 1cm from the bottom edge; one centred 5cm from the left edge and 1cm from the bottom edge; one centred 2cm from the left edge and 4cm from the bottom edge; one centred 4cm from the left edge and 4cm from the bottom edge. Option E is wrong: it shows all four correctly mirrored holes plus an extra phantom hole added on the fold line. **B1**

Answer: Option D

Question 4

Option B is correct: exactly 4 solid black squares centred at (1 cm, 7 cm); (3 cm, 7 cm); (5 cm, 7 cm); (7 cm, 7 cm). Option D is wrong: the last fold has not been unfolded (the holes from the final reflection are missing). Option C is wrong: the folds have been unfolded in the wrong order. Option E is wrong: there is a hole too many. Option A is wrong: there is a hole too many. **B1**

Answer: B) A 8 cm by 8 cm square, fully unfolded and flattened out, showing exactly 4 solid black squares centred at (1 cm, 7 cm); (3 cm, 7 cm); (5 cm, 7 cm); (7 cm, 7 cm).

Question 5

Option E is correct: exactly 2 solid black circles centred at (1 cm, 7 cm); (7 cm, 7 cm). Option D is wrong: a hole is missing. Option C is wrong: a hole is missing. Option B is wrong: there is a hole too many. Option A is wrong: there is a hole too many. **B1**

Answer: E) A 8 cm by 8 cm square, fully unfolded and flattened out, showing exactly 2 solid black circles centred at (1 cm, 7 cm); (7 cm, 7 cm).

Question 6

Option B is correct: exactly 8 solid black circles centred at (1 cm, 3 cm); (2 cm, 4.5 cm); (3 cm, 1 cm); (3.5 cm, 6 cm); (4.5 cm, 2 cm); (5 cm, 7 cm); (6 cm, 3.5 cm); (7 cm, 5 cm). Option A is wrong: a hole is missing. Option C is wrong: a hole is missing. Option D is wrong: the last fold has not been unfolded (the holes from the final reflection are missing). Option E is wrong: a hole is missing. **B1**

Answer: B) A 8 cm by 8 cm square, fully unfolded and flattened out, showing exactly 8 solid black circles centred at (1 cm, 3 cm); (2 cm, 4.5 cm); (3 cm, 1 cm); (3.5 cm, 6 cm); (4.5 cm, 2 cm); (5 cm, 7 cm); (6 cm, 3.5 cm); (7 cm, 5 cm).

Question 7

Option D is correct: exactly 8 solid black circles centred at (1 cm, 1 cm); (1 cm, 7 cm); (3 cm, 3 cm); (3 cm, 5 cm); (5 cm, 3 cm); (5 cm, 5 cm); (7 cm, 1 cm); (7 cm, 7 cm). Option E is wrong: the folds have been unfolded in the wrong order. Option A is wrong: one hole is in the wrong position. Option C is wrong: one hole is in the wrong position. Option B is wrong: one hole is in the wrong position. **B1**

Answer: D) A 8 cm by 8 cm square, fully unfolded and flattened out, showing exactly 8 solid black circles centred at (1 cm, 1 cm); (1 cm, 7 cm); (3 cm, 3 cm); (3 cm, 5 cm); (5 cm, 3 cm); (5 cm, 5 cm); (7 cm, 1 cm); (7 cm, 7 cm).

Question 8

Option B is correct: exactly 4 solid black circles centred at (2 cm, 1.5 cm); (2 cm, 6.5 cm); (6 cm, 1.5 cm); (6 cm, 6.5 cm). Option C is wrong: a hole is missing. Option D is wrong: a hole is missing. Option E is wrong: the last fold has not been unfolded (the holes from the final reflection are missing). Option A is wrong: a hole is missing. **B1**

Answer: B) A 8 cm by 8 cm square, fully unfolded and flattened out, showing exactly 4 solid black circles centred at (2 cm, 1.5 cm); (2 cm, 6.5 cm); (6 cm, 1.5 cm); (6 cm, 6.5 cm).

Question 9

Option A is correct: exactly 4 solid black circles centred at (1 cm, 1.5 cm); (1 cm, 6.5 cm); (7 cm, 1.5 cm); (7 cm, 6.5 cm). Option E is wrong: one hole is in the wrong position. Option D is wrong: one hole is in the wrong position. Option B is wrong: one hole is in the wrong position. Option C is wrong: one hole is in the wrong position. **B1**

Answer: A) A 8 cm by 8 cm square, fully unfolded and flattened out, showing exactly 4 solid black circles centred at (1 cm, 1.5 cm); (1 cm, 6.5 cm); (7 cm, 1.5 cm); (7 cm, 6.5 cm).

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Question 10

Option E is correct: exactly 4 solid black squares centred at (1 cm, 2.5 cm); (2.5 cm, 1 cm); (5.5 cm, 7 cm); (7 cm, 5.5 cm). Option A is wrong: there is a hole too many. Option B is wrong: there is a hole too many. Option C is wrong: there is a hole too many. Option D is wrong: the last fold has not been unfolded (the holes from the final reflection are missing). **B1**

Answer: E) A 8 cm by 8 cm square, fully unfolded and flattened out, showing exactly 4 solid black squares centred at (1 cm, 2.5 cm); (2.5 cm, 1 cm); (5.5 cm, 7 cm); (7 cm, 5.5 cm).

Question 11

Option B is correct: exactly 2 solid black circles centred at (2.5 cm, 7 cm); (5.5 cm, 7 cm). Option A is wrong: there is a hole too many. Option D is wrong: there is a hole too many. Option C is wrong: there is a hole too many. Option E is wrong: there is a hole too many. **B1**

Answer: B) A 8 cm by 8 cm square, fully unfolded and flattened out, showing exactly 2 solid black circles centred at (2.5 cm, 7 cm); (5.5 cm, 7 cm).

Question 12

Option A is wrong: it shows a blank square with no holes at all, wrongly assuming a hole at the very centre vanishes when unfolded. Option B is correct: exactly one solid black hole (0.6cm diameter), centred 3cm from the left edge and 3cm from the bottom edge. Option C is wrong: it wrongly treats the hole as being off both fold lines, giving four separate holes instead of one. Option D is wrong: it shows a single hole, but in the wrong position, from misjudging the distances from the edges. Option E is wrong: it wrongly treats the hole as being on only one of the two fold lines, giving two holes instead of one. **B1**

Answer: Option B

Question 13

Option D is correct: exactly 2 solid black circles centred at (3.5 cm, 1 cm); (3.5 cm, 7 cm). Option A is wrong: there is a hole too many. Option B is wrong: there is a hole too many. Option C is wrong: the last fold has not been unfolded (the holes from the final reflection are missing). Option E is wrong: a hole is missing. **B1**

Answer: D) A 8 cm by 8 cm square, fully unfolded and flattened out, showing exactly 2 solid black circles centred at (3.5 cm, 1 cm); (3.5 cm, 7 cm).

Question 14

Option C is correct: exactly 4 solid black circles centred at (1 cm, 1 cm); (1 cm, 3 cm); (1 cm, 5 cm); (1 cm, 7 cm). Option A is wrong: the folds have been unfolded in the wrong order. Option E is wrong: there is a hole too many. Option B is wrong: the last fold has not been unfolded (the holes from the final reflection are missing). Option D is wrong: there is a hole too many. **B1**

Answer: C) A 8 cm by 8 cm square, fully unfolded and flattened out, showing exactly 4 solid black circles centred at (1 cm, 1 cm); (1 cm, 3 cm); (1 cm, 5 cm); (1 cm, 7 cm).

Question 15

Option B is correct: exactly 2 solid black circles centred at (4.5 cm, 2 cm); (6 cm, 3.5 cm). Option D is wrong: there is a hole too many. Option C is wrong: there is a hole too many. Option E is wrong: there is a hole too many. Option A is wrong: there is a hole too many. **B1**

Answer: B) A 8 cm by 8 cm square, fully unfolded and flattened out, showing exactly 2 solid black circles centred at (4.5 cm, 2 cm); (6 cm, 3.5 cm).

Question 16

Option D is correct: exactly 8 solid black circles centred at (2.5 cm, 1 cm); (2.5 cm, 3 cm); (2.5 cm, 5 cm); (2.5 cm, 7 cm); (5.5 cm, 1 cm); (5.5 cm, 3 cm); (5.5 cm, 5 cm); (5.5 cm, 7 cm). Option A is wrong: the folds have been unfolded in the wrong order. Option B is wrong: one hole is in the wrong position. Option C is wrong: one hole is in the wrong position. Option E is wrong: one hole is in the wrong position. **B1**

Answer: D) A 8 cm by 8 cm square, fully unfolded and flattened out, showing exactly 8 solid black circles centred at (2.5 cm, 1 cm); (2.5 cm, 3 cm); (2.5 cm, 5 cm); (2.5 cm, 7 cm); (5.5 cm, 1 cm); (5.5 cm, 3 cm); (5.5 cm, 5 cm); (5.5 cm, 7 cm).

Question 17

Option D is correct: exactly 4 solid black circles centred at (1 cm, 3 cm); (3 cm, 1 cm); (5 cm, 7 cm); (7 cm, 5 cm). Option A is wrong: the last fold has not been unfolded (the holes from the final reflection are missing). Option B is wrong: there is a hole too many. Option C is wrong: there is a hole too many. Option E is wrong: there is a hole too many. **B1**

Answer: D) A 8 cm by 8 cm square, fully unfolded and flattened out, showing exactly 4 solid black circles centred at (1 cm, 3 cm); (3 cm, 1 cm); (5 cm, 7 cm); (7 cm, 5 cm).

Question 18

Option A is correct: exactly 8 solid black circles centred at (1 cm, 2.5 cm); (1 cm, 5.5 cm); (2.5 cm, 1 cm); (2.5 cm, 7 cm); (5.5 cm, 1 cm); (5.5 cm, 7 cm); (7 cm, 2.5 cm); (7 cm, 5.5 cm). Option C is wrong: one hole is in the wrong position. Option D is wrong: one hole is in the wrong position. Option B is wrong: one hole is in the wrong position. Option E is wrong: one hole is in the wrong position. **B1**

Answer: A) A 8 cm by 8 cm square, fully unfolded and flattened out, showing exactly 8 solid black circles centred at (1 cm, 2.5 cm); (1 cm, 5.5 cm); (2.5 cm, 1 cm); (2.5 cm, 7 cm); (5.5 cm, 1 cm); (5.5 cm, 7 cm); (7 cm, 2.5 cm); (7 cm, 5.5 cm).

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Question 19

Option D is correct: exactly 8 solid black triangles centred at (1.5 cm, 3 cm) pointing left; (1.5 cm, 5 cm) pointing left; (3 cm, 1.5 cm) pointing down; (3 cm, 6.5 cm) pointing up; (5 cm, 1.5 cm) pointing down; (5 cm, 6.5 cm) pointing up; (6.5 cm, 3 cm) pointing right; (6.5 cm, 5 cm) pointing right. Option A is wrong: one hole is in the wrong position. Option C is wrong: the triangles have not been reflected with the paper. Option E is wrong: one hole is in the wrong position. Option B is wrong: one hole is in the wrong position. **B1**

Answer: D) A 8 cm by 8 cm square, fully unfolded and flattened out, showing exactly 8 solid black triangles centred at (1.5 cm, 3 cm) pointing left; (1.5 cm, 5 cm) pointing left; (3 cm, 1.5 cm) pointing down; (3 cm, 6.5 cm) pointing up; (5 cm, 1.5 cm) pointing down; (5 cm, 6.5 cm) pointing up; (6.5 cm, 3 cm) pointing right; (6.5 cm, 5 cm) pointing right.

Question 20

Option D is correct: exactly 2 solid black circles centred at (1.5 cm, 1.5 cm); (6.5 cm, 6.5 cm). Option A is wrong: there is a hole too many. Option B is wrong: a hole is missing. Option C is wrong: a hole is missing. Option E is wrong: there is a hole too many. **B1**

Answer: D) A 8 cm by 8 cm square, fully unfolded and flattened out, showing exactly 2 solid black circles centred at (1.5 cm, 1.5 cm); (6.5 cm, 6.5 cm).

Question 21

Option A is wrong: it shows only the single punched hole, with no mirror-image hole added across the diagonal fold line. Option B is wrong: it reflects the hole across the OTHER diagonal of the square instead of the actual fold line. Option C is wrong: it reflects the hole using a straight (vertical) mirror line instead of the diagonal fold line. Option D is wrong: it shows the two correctly mirrored holes plus an extra phantom hole added exactly on the diagonal fold line. Option E is correct: exactly 2 solid black holes (each 0.6cm diameter): one centred 4cm from the left edge and 1cm from the bottom edge; one centred 1cm from the left edge and 4cm from the bottom edge. **B1**

Answer: Option E

Question 22

Option B is correct: exactly 4 solid black triangles centred at (2 cm, 4 cm) pointing up; (4 cm, 2 cm) pointing right; (4 cm, 6 cm) pointing left; (6 cm, 4 cm) pointing down. Option E is wrong: a hole is missing. Option A is wrong: the triangles have not been reflected with the paper. Option C is wrong: the last fold has not been unfolded (the holes from the final reflection are missing). Option D is wrong: the triangles have not been reflected with the paper. **B1**

Answer: B) A 8 cm by 8 cm square, fully unfolded and flattened out, showing exactly 4 solid black triangles centred at (2 cm, 4 cm) pointing up; (4 cm, 2 cm) pointing right; (4 cm, 6 cm) pointing left; (6 cm, 4 cm) pointing down.

Question 23

Option A is wrong: it reflects the hole across only one of the two fold lines, giving two holes instead of four. Option B is correct: exactly 4 solid black holes (each 0.6cm diameter): one centred 0.5cm from the left edge and 1cm from the bottom edge; one centred 5.5cm from the left edge and 1cm from the bottom edge; one centred 0.5cm from the left edge and 5cm from the bottom edge; one centred 5.5cm from the left edge and 5cm from the bottom edge. Option C is wrong: it shows only the single original punched hole, with no reflection across either fold line. Option D is wrong: it misjudges the distance of the hole from the edge, giving four holes in slightly the wrong positions. Option E is wrong: it swaps the two measurements before reflecting across both fold lines, giving four holes in the wrong positions. **B1**

Answer: Option B

Question 24

Option A is correct: exactly 8 solid black triangles centred at (1 cm, 3.5 cm) pointing right; (2.5 cm, 4 cm) pointing right; (3.5 cm, 1 cm) pointing up; (4 cm, 2.5 cm) pointing up; (4 cm, 5.5 cm) pointing down; (4.5 cm, 7 cm) pointing down; (5.5 cm, 4 cm) pointing left; (7 cm, 4.5 cm) pointing left. Option B is wrong: a hole is missing. Option E is wrong: the last fold has not been unfolded (the holes from the final reflection are missing). Option D is wrong: a hole is missing. Option C is wrong: a hole is missing. **B1**

Answer: A) A 8 cm by 8 cm square, fully unfolded and flattened out, showing exactly 8 solid black triangles centred at (1 cm, 3.5 cm) pointing right; (2.5 cm, 4 cm) pointing right; (3.5 cm, 1 cm) pointing up; (4 cm, 2.5 cm) pointing up; (4 cm, 5.5 cm) pointing down; (4.5 cm, 7 cm) pointing down; (5.5 cm, 4 cm) pointing left; (7 cm, 4.5 cm) pointing left.

Question 25

Option A is correct: exactly 4 solid black circles centred at (2.5 cm, 2 cm); (2.5 cm, 6 cm); (5.5 cm, 2 cm); (5.5 cm, 6 cm). Option C is wrong: one hole is in the wrong position. Option D is wrong: one hole is in the wrong position. Option B is wrong: one hole is in the wrong position. Option E is wrong: one hole is in the wrong position. **B1**

Answer: A) A 8 cm by 8 cm square, fully unfolded and flattened out, showing exactly 4 solid black circles centred at (2.5 cm, 2 cm); (2.5 cm, 6 cm); (5.5 cm, 2 cm); (5.5 cm, 6 cm).

Question 26

Option A is correct: exactly 2 solid black holes (each 0.6cm diameter): one centred 1.5cm from the left edge and 4cm from the bottom edge; one centred 4.5cm from the left edge and 4cm from the bottom edge. Option B is wrong: it shows only the single punched hole, with no mirror-image hole added when the paper is unfolded. Option C is wrong: it shows the two correctly mirrored holes but with an extra phantom hole added exactly on the fold line. Option D is wrong: it mirrors the wrong measurement (the distance that should stay fixed has been flipped, and the distance that should be flipped has been kept fixed). Option E is wrong: it swaps the two measurements (distance from the left edge and distance from the bottom edge) before mirroring, so the whole hole pattern is in the wrong orientation. **B1**

Answer: Option A

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Question 27

Option A is correct: exactly 8 solid black circles centred at (1.5 cm, 3 cm); (1.5 cm, 5 cm); (3 cm, 1.5 cm); (3 cm, 6.5 cm); (5 cm, 1.5 cm); (5 cm, 6.5 cm); (6.5 cm, 3 cm); (6.5 cm, 5 cm). Option B is wrong: one hole is in the wrong position. Option C is wrong: one hole is in the wrong position. Option D is wrong: one hole is in the wrong position. Option E is wrong: one hole is in the wrong position. **B1**

Answer: A) A 8 cm by 8 cm square, fully unfolded and flattened out, showing exactly 8 solid black circles centred at (1.5 cm, 3 cm); (1.5 cm, 5 cm); (3 cm, 1.5 cm); (3 cm, 6.5 cm); (5 cm, 1.5 cm); (5 cm, 6.5 cm); (6.5 cm, 3 cm); (6.5 cm, 5 cm).

Question 28

Option C is correct: exactly 8 solid black squares centred at (1 cm, 3 cm); (1.5 cm, 4.5 cm); (3 cm, 1 cm); (3.5 cm, 6.5 cm); (4.5 cm, 1.5 cm); (5 cm, 7 cm); (6.5 cm, 3.5 cm); (7 cm, 5 cm). Option D is wrong: a hole is missing. Option B is wrong: a hole is missing. Option A is wrong: a hole is missing. Option E is wrong: the last fold has not been unfolded (the holes from the final reflection are missing). **B1**

Answer: C) A 8 cm by 8 cm square, fully unfolded and flattened out, showing exactly 8 solid black squares centred at (1 cm, 3 cm); (1.5 cm, 4.5 cm); (3 cm, 1 cm); (3.5 cm, 6.5 cm); (4.5 cm, 1.5 cm); (5 cm, 7 cm); (6.5 cm, 3.5 cm); (7 cm, 5 cm).

Question 29

Option E is correct: exactly 2 solid black circles centred at (4 cm, 1.5 cm); (4 cm, 6.5 cm). Option C is wrong: a hole is missing. Option B is wrong: a hole is missing. Option D is wrong: there is a hole too many. Option A is wrong: there is a hole too many. **B1**

Answer: E) A 8 cm by 8 cm square, fully unfolded and flattened out, showing exactly 2 solid black circles centred at (4 cm, 1.5 cm); (4 cm, 6.5 cm).

Question 30

Option D is correct: exactly 2 solid black circles centred at (1.5 cm, 1 cm); (6.5 cm, 1 cm). Option C is wrong: a hole is missing. Option E is wrong: there is a hole too many. Option B is wrong: there is a hole too many. Option A is wrong: there is a hole too many. **B1**

Answer: D) A 8 cm by 8 cm square, fully unfolded and flattened out, showing exactly 2 solid black circles centred at (1.5 cm, 1 cm); (6.5 cm, 1 cm).

Question 31

Option C is correct: exactly 8 solid black triangles centred at (3 cm, 1 cm) pointing down; (3 cm, 3 cm) pointing up; (3 cm, 5 cm) pointing down; (3 cm, 7 cm) pointing up; (5 cm, 1 cm) pointing down; (5 cm, 3 cm) pointing up; (5 cm, 5 cm) pointing down; (5 cm, 7 cm) pointing up. Option B is wrong: there is a hole too many. Option E is wrong: the folds have been unfolded in the wrong order. Option A is wrong: there is a hole too many. Option D is wrong: the last fold has not been unfolded (the holes from the final reflection are missing). **B1**

Answer: C) A 8 cm by 8 cm square, fully unfolded and flattened out, showing exactly 8 solid black triangles centred at (3 cm, 1 cm) pointing down; (3 cm, 3 cm) pointing up; (3 cm, 5 cm) pointing down; (3 cm, 7 cm) pointing up; (5 cm, 1 cm) pointing down; (5 cm, 3 cm) pointing up; (5 cm, 5 cm) pointing down; (5 cm, 7 cm) pointing up.

Question 32

Option B is correct: exactly 2 solid black circles centred at (4 cm, 1.5 cm); (6.5 cm, 4 cm). Option D is wrong: a hole is missing. Option C is wrong: a hole is missing. Option E is wrong: there is a hole too many. Option A is wrong: there is a hole too many. **B1**

Answer: B) A 8 cm by 8 cm square, fully unfolded and flattened out, showing exactly 2 solid black circles centred at (4 cm, 1.5 cm); (6.5 cm, 4 cm).

Question 33

Option E is correct: exactly 4 solid black squares centred at (3 cm, 1 cm); (3 cm, 3 cm); (3 cm, 5 cm); (3 cm, 7 cm). Option B is wrong: the last fold has not been unfolded (the holes from the final reflection are missing). Option A is wrong: there is a hole too many. Option D is wrong: there is a hole too many. Option C is wrong: the folds have been unfolded in the wrong order. **B1**

Answer: E) A 8 cm by 8 cm square, fully unfolded and flattened out, showing exactly 4 solid black squares centred at (3 cm, 1 cm); (3 cm, 3 cm); (3 cm, 5 cm); (3 cm, 7 cm).

Question 34

Option A is correct: exactly 8 solid black circles centred at (1.5 cm, 5 cm); (2.5 cm, 4 cm); (3 cm, 6.5 cm); (4 cm, 2.5 cm); (4 cm, 5.5 cm); (5 cm, 1.5 cm); (5.5 cm, 4 cm); (6.5 cm, 3 cm). Option D is wrong: one hole is in the wrong position. Option C is wrong: one hole is in the wrong position. Option B is wrong: one hole is in the wrong position. Option E is wrong: one hole is in the wrong position. **B1**

Answer: A) A 8 cm by 8 cm square, fully unfolded and flattened out, showing exactly 8 solid black circles centred at (1.5 cm, 5 cm); (2.5 cm, 4 cm); (3 cm, 6.5 cm); (4 cm, 2.5 cm); (4 cm, 5.5 cm); (5 cm, 1.5 cm); (5.5 cm, 4 cm); (6.5 cm, 3 cm).

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Question 35

Option C is correct: exactly 4 solid black circles centred at (5 cm, 1 cm); (5 cm, 3 cm); (5 cm, 5 cm); (5 cm, 7 cm). Option B is wrong: the folds have been unfolded in the wrong order. Option A is wrong: there is a hole too many. Option D is wrong: the last fold has not been unfolded (the holes from the final reflection are missing). Option E is wrong: there is a hole too many. **B1**

Answer: C) A 8 cm by 8 cm square, fully unfolded and flattened out, showing exactly 4 solid black circles centred at (5 cm, 1 cm); (5 cm, 3 cm); (5 cm, 5 cm); (5 cm, 7 cm).

Question 36

Option E is correct: exactly 8 solid black circles centred at (1 cm, 1.5 cm); (1 cm, 6.5 cm); (2.5 cm, 3 cm); (2.5 cm, 5 cm); (5.5 cm, 3 cm); (5.5 cm, 5 cm); (7 cm, 1.5 cm); (7 cm, 6.5 cm). Option A is wrong: the folds have been unfolded in the wrong order. Option B is wrong: one hole is in the wrong position. Option C is wrong: one hole is in the wrong position. Option D is wrong: one hole is in the wrong position. **B1**

Answer: E) A 8 cm by 8 cm square, fully unfolded and flattened out, showing exactly 8 solid black circles centred at (1 cm, 1.5 cm); (1 cm, 6.5 cm); (2.5 cm, 3 cm); (2.5 cm, 5 cm); (5.5 cm, 3 cm); (5.5 cm, 5 cm); (7 cm, 1.5 cm); (7 cm, 6.5 cm).

Question 37

Option D is correct: exactly 4 solid black triangles centred at (1.5 cm, 3 cm) pointing down; (3 cm, 1.5 cm) pointing left; (5 cm, 6.5 cm) pointing right; (6.5 cm, 5 cm) pointing up. Option A is wrong: there is a hole too many. Option B is wrong: there is a hole too many. Option C is wrong: the last fold has not been unfolded (the holes from the final reflection are missing). Option E is wrong: there is a hole too many. **B1**

Answer: D) A 8 cm by 8 cm square, fully unfolded and flattened out, showing exactly 4 solid black triangles centred at (1.5 cm, 3 cm) pointing down; (3 cm, 1.5 cm) pointing left; (5 cm, 6.5 cm) pointing right; (6.5 cm, 5 cm) pointing up.

Question 38

Option A is correct: exactly 2 solid black circles centred at (4.5 cm, 2 cm); (4.5 cm, 6 cm). Option E is wrong: there is a hole too many. Option C is wrong: a hole is missing. Option B is wrong: a hole is missing. Option D is wrong: there is a hole too many. **B1**

Answer: A) A 8 cm by 8 cm square, fully unfolded and flattened out, showing exactly 2 solid black circles centred at (4.5 cm, 2 cm); (4.5 cm, 6 cm).

Question 39

Option A is correct: exactly 8 solid black triangles centred at (1 cm, 5 cm) pointing down; (2 cm, 4 cm) pointing down; (3 cm, 7 cm) pointing right; (4 cm, 2 cm) pointing left; (4 cm, 6 cm) pointing right; (5 cm, 1 cm) pointing left; (6 cm, 4 cm) pointing up; (7 cm, 3 cm) pointing up. Option C is wrong: there is a hole too many. Option B is wrong: there is a hole too many. Option E is wrong: there is a hole too many. Option D is wrong: the last fold has not been unfolded (the holes from the final reflection are missing). **B1**

Answer: A) A 8 cm by 8 cm square, fully unfolded and flattened out, showing exactly 8 solid black triangles centred at (1 cm, 5 cm) pointing down; (2 cm, 4 cm) pointing down; (3 cm, 7 cm) pointing right; (4 cm, 2 cm) pointing left; (4 cm, 6 cm) pointing right; (5 cm, 1 cm) pointing left; (6 cm, 4 cm) pointing up; (7 cm, 3 cm) pointing up.

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