4.10 Fold and Punch: 10-minute Pack

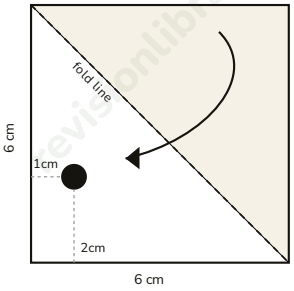
GL ASSESSMENT 11+ NVR · Calculators not allowed · about 10 minutes

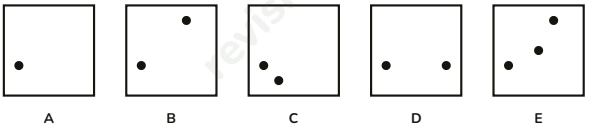
Total Marks

Name: _____ Date: ____ / ____ / _____

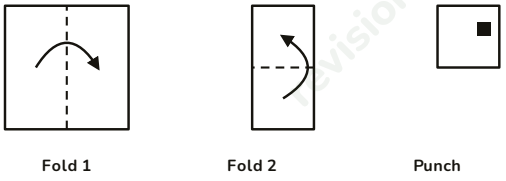
Answer ALL questions. Show all your working.

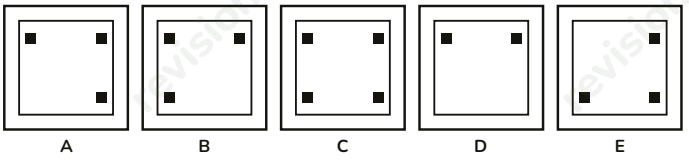
1 Study the square sheet of paper described below. It is folded as described, in the direction shown by the arrow(s), and a hole (or holes) is punched through all the layers at the point(s) marked. Which of the options A to E shows the sheet of paper fully opened out flat again, with every resulting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



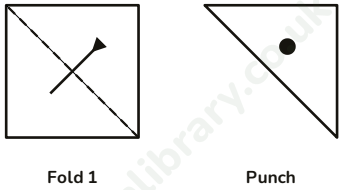


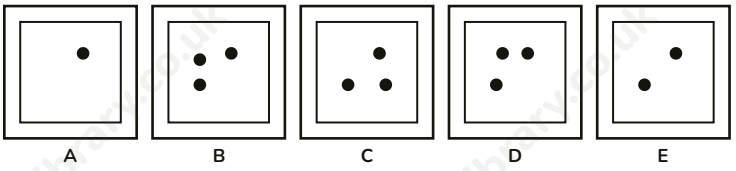
2 A square sheet of paper is folded as shown in the steps, with the dashed line and curved arrow showing each fold. A hole is then punched through all the layers at the place shown. Which of the options A to E shows the sheet opened out flat again, with every hole in its correct position?



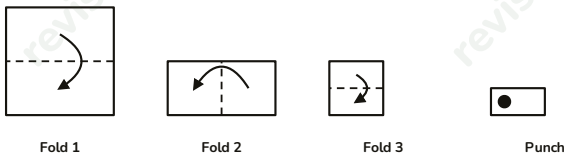


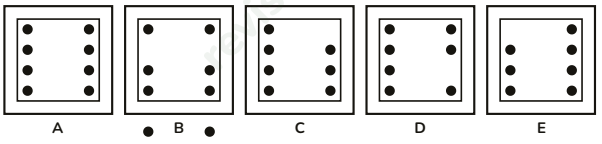
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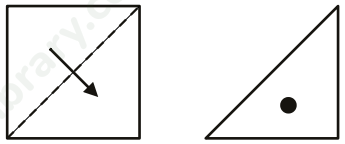
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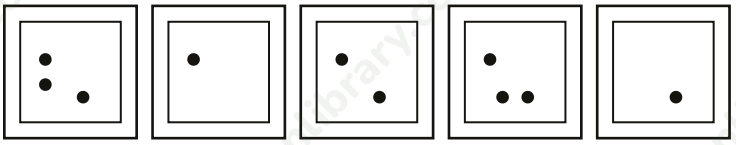




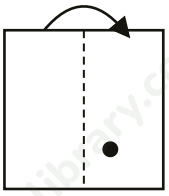
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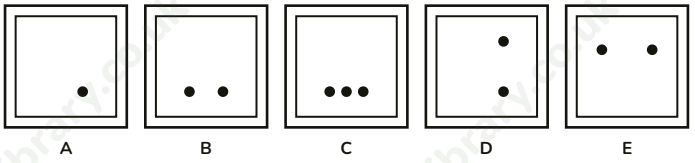
5



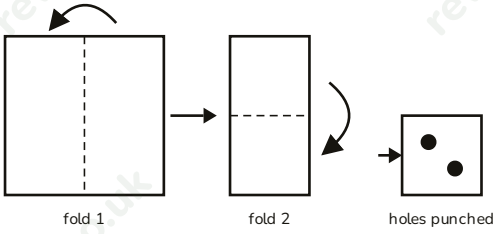


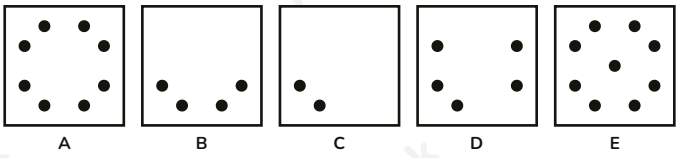
6 Study the square sheet of paper described below. It is folded as described, in the direction shown by the arrow(s), and a hole (or holes) is punched through all the layers at the point(s) marked. Which of the options A to E shows the sheet of paper fully opened out flat again, with every resulting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





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Mark scheme · 4.10 Fold and Punch: 10-minute Pack

Question 1

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 correct: exactly 2 solid black holes (each 0.6cm diameter): one centred 1cm from the left edge and 2cm from the bottom edge; one centred 4cm from the left edge and 5cm from the bottom edge. Option C is wrong: it reflects the hole across the OTHER diagonal of the square instead of the actual fold line. Option D is wrong: it reflects the hole using a straight (vertical) mirror line instead of the diagonal fold line. Option E is wrong: it shows the two correctly mirrored holes plus an extra phantom hole added exactly on the diagonal fold line. **B1**

Answer: Option B

Question 2

Option C is correct: exactly 4 solid black squares centred at (1 cm, 1.5 cm); (1 cm, 6.5 cm); (7 cm, 1.5 cm); (7 cm, 6.5 cm). 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. Option B is wrong: a hole is missing. Option A is wrong: a hole is missing. **B1**

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

Question 3

Option E is correct: exactly 2 solid black circles centred at (2.5 cm, 3 cm); (5 cm, 5.5 cm). Option A is wrong: a hole is missing. Option B is wrong: there is a hole too many. Option C is wrong: there is a hole too many. Option D 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 (2.5 cm, 3 cm); (5 cm, 5.5 cm).

Question 4

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

Question 5

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

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

Question 6

Option A is wrong: it shows only the single punched hole, with no mirror-image hole added when the paper is unfolded. Option B is correct: exactly 2 solid black holes (each 0.6cm diameter): one centred 4cm from the left edge and 1.5cm from the bottom edge; one centred 2cm from the left edge and 1.5cm from the bottom edge. 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 B

Question 7

Option A is correct: exactly 8 solid black holes (each 0.6cm diameter): one centred 1cm from the left edge and 2cm from the bottom edge; one centred 5cm from the left edge and 2cm from the bottom edge; one centred 1cm from the left edge and 4cm from the bottom edge; one centred 5cm from the left edge and 4cm from the bottom edge; one centred 2cm from the left edge and 1cm from the bottom edge; one centred 4cm from the left edge and 1cm from the bottom edge; one centred 2cm from the left edge and 5cm from the bottom edge; one centred 4cm from the left edge and 5cm from the bottom edge. Option B is wrong: it reflects both holes across only one of the two fold lines, giving four holes instead of eight. Option C is wrong: it shows only the two original punched holes, with no reflection across either fold line. Option D is wrong: it reflects one hole fully across both fold lines but leaves the other hole completely unreflected. Option E is wrong: it shows all eight correctly mirrored holes plus an extra phantom hole added at the centre of the square. **B1**

Answer: Option A

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