Grading criteria

Ages 9-10

Maximum 35 points

Problem 1 · Folded sheet

Answer: (e).

- **3** Answer (e).
- **0** Any other answer.

Problem 2 · Balancing shapes

Answer: (c), 4.

- **3** Answer (c) or 4.
- **0** Any other answer.

Problem 3 · Eight more black cells than white cells

Example answer: 4 × 4.

Organiser's clarification dated 1 November 2026: rectangles measuring 4 × 2 and 1 × 8 receive 5 points.

- **5** Any rectangle measuring 4 × n, where n ≥ 3.
- **3** The dimensions are correct, but the colouring contains an error (some boundary cells are not shaded, or extra cells are shaded).
- **0** Any other rectangle.

Problem 4 · Table with suns

Answer: 9.

- **5** Answer 9.
- **2** Answer 48 (the sum of all the numbers in the table has been found, but the visible numbers have not been subtracted).
- **0** Any other answer.

Problem 5 · The gardener's route

- **5** The route matches the reference route.
- **3** The route matches the reference route except for one section covering two or three cells.
- **1** The route is incorrect, but the forced moves in all the corner cells are correctly marked.
- **0** In all other cases.

Problem 6 · Kate and the umbrella

Answer: 25.

- **7** It is explained that on the 15 days without an umbrella there was no rain and the forecast was correct, so rain was correctly forecast on 21 − 15 = 6 days, and the number of days without rain was 31 − 6 = 25.
- **5** The reasoning is correct, but one justification is missing (for example, why there was no rain on the days without an umbrella), or there is an arithmetic error.
- **3** It is established that on the 15 days without an umbrella the forecast matched the weather, with no further progress; or the 6 rainy days are correctly found, but the answer is given to a different question.
- **2** The correct answer is given with an example of the weather day by day, without explaining why no other answer is possible.
- **1** Only the answer is given.
- **0** An incorrect answer, or no progress.

Problem 7 · Sixteen cards, sum 17. A proof problem

- **7** The cards are divided into 8 pairs with sum 17, and it is explained why a selection of 9 cards must contain both cards of at least one pair.
- **5** The pairs are listed and the conclusion is stated, but the explanation is incomplete (for example, a “worst-case” argument without explaining why that case is the worst).
- **3** All 8 pairs with sum 17 are listed, but no conclusion is stated.
- **0** Several selections of cards are checked instead of giving a proof.

Grading criteria

Ages 11-12

Maximum 35 points

Problem 1 · Misha and his friends

Answer: (d), 13.

- **3** Answer (d) or 13.
- **0** Any other answer.

Problem 2 · A heart in a circle

Answer: (c), 20 cm.

- **3** Answer (c) or 20.
- **0** Any other answer.

Problem 3 · A figure of 10 triangles with perimeter 12

- **5** 10 triangles joined along their sides are shaded; the figure has no holes, its perimeter is 12, and it has exactly 9 vertices.
- **3** There are 10 triangles and the figure has no holes, but one of the numerical requirements, the perimeter or the number of vertices, is not met.
- **1** The perimeter is 12 and there are 9 vertices, but the number of triangles is not 10, or the figure has a hole.
- **0** In all other cases.

Problem 4 · Lydia's numbers

Example answer: 4, 5, 8, 6.

- **5** Four single-digit numbers are given, and every digit from 1 to 9 occurs among the seven entries (the numbers themselves and the three intermediate sums).
- **2** Four single-digit numbers are given, but exactly one digit is missing from the entries; or all the digits occur, but there are more than four starting numbers.
- **0** In all other cases.

Problem 5 · Fourteen lamps

- **5** There are 14 lamps in total, at most one on each plaza, and each of the 12 paths is lit by the same number of lamps.
- **3** There are 14 lamps, with at most one on each plaza, but the number of lamps lighting one or two paths differs from that for the other paths.
- **2** All paths are lit by the same number of lamps, with at most one lamp on each plaza, but the total number of lamps is not 14.
- **0** In all other cases.

Problem 6 · Ladybugs

Answer: 7.

- **7** It is explained that in the sum 15 + 16 the central ladybug is counted twice; the number of dots on it is found to be 31 − 26 = 5, and the number on the two right-hand ladybugs is found to be 26 − 14 − 5 = 7.
- **5** The reasoning is correct, with an arithmetic error.
- **4** It is found that the central ladybug has 5 dots, with no further progress.
- **2** The correct answer is given with a specific distribution of dots, without explaining why the answer is always 7.
- **1** Only the answer is given.
- **0** An incorrect answer, or no progress.

Problem 7 · McGonagall and two-digit numbers

Answer: 49, 77 and 91.

- **7** The numbers 45, 20 and 56 are used to justify that Neville erased numbers last, and all two-digit numbers divisible by 7 and by none of 2, 3 and 5 are found.
- **5** The solution is correct, but one of the three conclusions about the order (from 45, 20 or 56) is not justified.
- **2** The numbers divisible by 7 and by none of 2, 3 and 5 are correctly found, but it is simply assumed that Neville was last.
- **2** It is correctly established that Neville was last, but the set of numbers contains an error (a number is omitted or added).
- **1** Only the answer is given.
- **0** An incorrect answer, or no progress.

Grading criteria

Ages 13-14

Maximum 35 points

Problem 1 · Perimeter of the shaded figure

Answer: (b), 26.

- **3** Answer (b) or 26.
- **0** Any other answer.

Problem 2 · Number of rectangles

Answer: (d), 31.

- **3** Answer (d) or 31.
- **0** Any other answer.

Problem 3 · Sixteen intersection points

If a line segment or a ray is drawn instead of a line, extend it mentally to a line and assess the drawing on that basis.

- **5** The drawing contains two circles, a square and a line, and exactly 16 distinct intersection points (a point where three figures meet is counted once).
- **3** There are exactly 16 points, but one of the figures is not the one required by the problem (for example, a rectangle instead of a square).
- **2** The required figures are present, but there are 15 or 17 points.
- **0** In all other cases.

Problem 4 · Sum of digit cubes

Answer: 153, 370, 371 or 407.

- **5** Any one of these four numbers is given.
- **0** A different number is given, or several numbers are listed and at least one is incorrect.

Problem 5 · Dominoes in a 4 × 4 grid

- **5** Exactly the eight given dominoes are used, each once; they cover the grid without overlaps, and the sum in every row and every column is 20.
- **3** The grid is correctly covered with the given dominoes, but in one or two rows or columns the sum differs from 20.
- **0** In all other cases.

Problem 6 · The digit 8 in a 2026-digit number

Answer: 338.

- **7** The period 4, 8, 2, 6, 2, 2 is found; it is explained why it repeats (each digit is determined by the two previous digits, and the pair 4, 8 has occurred again); and the calculation $2024 = 6 \cdot 337 + 2$ is correct.
- **6** Everything is correct, but the repetition of the period is not justified (“and so on”).
- **4** The period is correct, but there is an off-by-one error in the count: the remainder is forgotten, or the period is counted from the first digit (answer 337 or 339).
- **2** The correct period is written down, with no further progress, or the counting method is fundamentally incorrect.
- **1** Only the answer is given.
- **0** An incorrect answer, or no progress.

Problem 7 · A 5 × 5 square with the numbers 10, 12 and 14

Answer: impossible.

- **7** A complete proof: 13 must be next to 14, 11 must be next to 13, and then neither 11 nor 10 can be next to 12.
- **5** The reasoning is correct, but at one point the statement “these cells are not adjacent” is not justified, although this is not obvious from the positions of the cells.
- **3** It is proved that 13 is next to 14 and 11 is next to 13, but no contradiction is obtained.
- **1** It is proved only that 13 is next to 14.
- **0** The answer “impossible” without justification, or attempts to construct an arrangement.