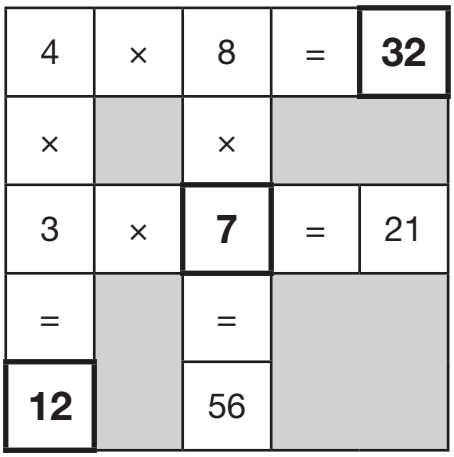
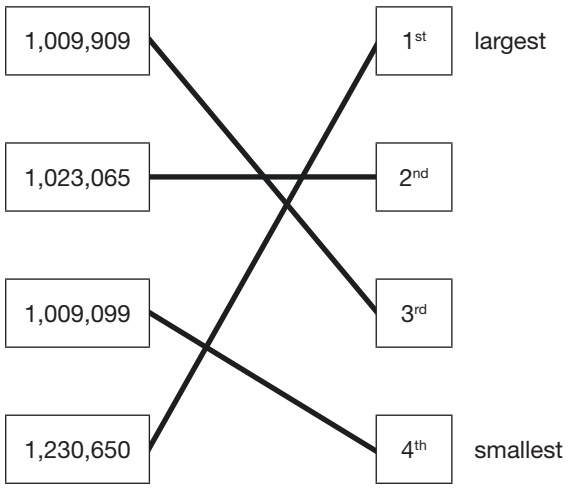
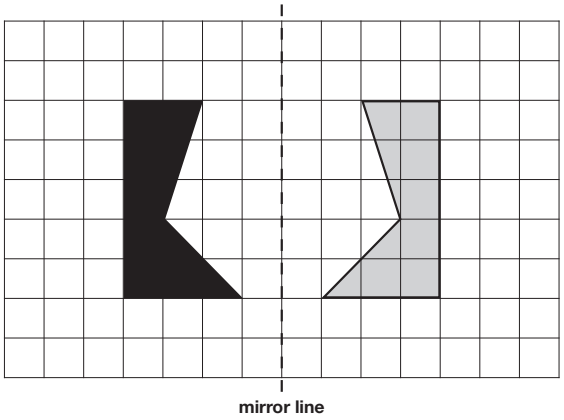
8. Mark schemes for Paper 2: reasoning

Qu.	Requirement	Mark	Additional guidance
1	Award **ONE** mark for three correct answers, as shown:  	1m	
2	8,072	1m	
3	Award **ONE** mark for the four numbers matched correctly, as shown:  	1m	Lines need not touch the numbers and ordinals, provided the intention is clear. **Do not** accept any number which has been matched to more than one ordinal.

Qu.	Requirement	Mark	Additional guidance
4	Diagram completed, as shown:  	1m	Accept slight inaccuracies in drawing (see page 13 for guidance). Shape need not be shaded for the award of **ONE** mark.
5	Award **TWO** marks for three correct numbers, as shown: **110** 155 200 245 **290** **335** Award **ONE** mark for: • any two numbers correctly placed **OR** • if box 1 is correct, accept correct follow-through for box 3 from the incorrect value in box 2.	Up to 2m	**Do not** accept misreads for this question.
6	10	1m	
7	2.5 or $2\frac{1}{2}$	1m	Refer to section 6.3 on page 16 for additional guidance on marking answers involving measures.
8a	11 written in the first box, as shown: **11** 25 53	1m	
8b	109 written in the last box, as shown: 25 53 **109**	1m	
9	Award **TWO** marks for the correct answer of 124 If the answer is incorrect, award **ONE** mark for evidence of an appropriate method, e.g. • 953 – 85 = 868 868 ÷ 7	Up to 2m	Answer need not be obtained for the award of **ONE** mark. If the pupil's evaluation contradicts the appropriate method, the method mark will not be awarded.

Qu.	Requirement	Mark	Additional guidance
10	Second box only ticked correctly, as shown: number of tickets × 3 + 24 ☐ number of tickets × 24 + 3 ✓ number of tickets + 3 × 24 ☐ number of tickets + 24 × 3 ☐	**1m**	Accept alternative unambiguous positive indication of the correct answer, e.g. Y.
11a	0.25	**1m**	**Do not** accept $\frac{1}{4}$ or any other fraction. Refer to section 6.3 on page 16 for additional guidance on marking answers involving measures.
11b	65(p) **OR** (£)0.65	**1m**	Refer to section 6.1 on pages 14 and 15 for additional guidance on marking answers involving money.
12	Both symbols correct, as shown: $\frac{7}{10}$ [>] 0.07 $\frac{23}{1000}$ [<] 0.23	**1m**	

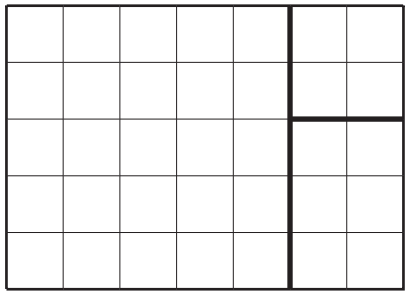
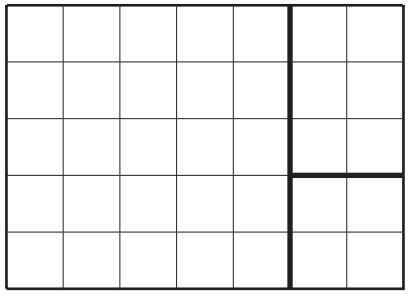
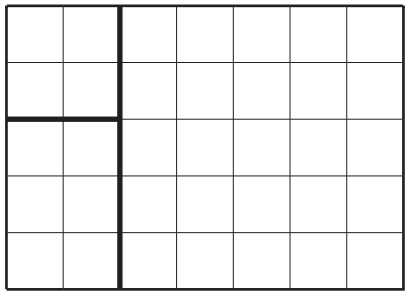
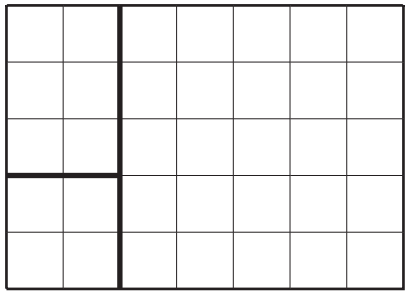
<table>
<tr><th>Qu.</th><th>Requirement</th><th>Mark</th><th>Additional guidance</th></tr>
<tr><td>13</td><td>Award TWO marks for a completed triangle that has all of the following three points:
an angle in the range 33° to 37° inclusive for the angle marked 35°
an angle in the range 88° to 92° inclusive for the right angle
the triangle has been drawn on an 8cm line (either on the given line or a line drawn), provided they have constructed both angles within the tolerance of the line 7.9cm to 8.1cm.
If the answer is incorrect, award ONE mark for a completed triangle and two of the three points correct.</td><td>Up to 2m</td><td>Accept drawings where any side has been extended past a vertex.

When considering whether the triangle is completed, do not accept:
a quadrilateral or another shape drawn
OR
a curved line that is used to complete the shape
OR
sides not meeting to form a vertex.</td></tr>
<tr><td>14</td><td>Award TWO marks for the correct completion of the three numbers in the table, as shown:

<table><tr><th></th><th>Round 39,476</th></tr><tr><td>to the nearest 10,000</td><td>40,000</td></tr><tr><td>to the nearest 1,000</td><td>39,000</td></tr><tr><td>to the nearest 100</td><td>39,500</td></tr></table>
If the answer is incorrect, award ONE mark for any two of the numbers rounded correctly.</td><td>Up to 2m</td><td>Do not accept 9,000 or 500 for the second and third entries.</td></tr>
<tr><td>15</td><td>25</td><td>1m</td><td></td></tr>
<tr><td>16</td><td>4</td><td>1m</td><td></td></tr>
</table>

Qu.	Requirement	Mark	Additional guidance
17	Award **TWO** marks for the correct answer of 144 If the answer is incorrect, award **ONE** mark for evidence of an appropriate method, e.g. • 8 × 6 = 48 48 ÷ 4 = 13 *(error)* 13 × 13 = 169 **OR** Award **ONE** mark for: • evidence for the side length of the square calculated correctly, i.e. 12	**Up to 2m**	Answer need not be obtained for the award of **ONE** mark.
18	Award **ONE** mark for a correct explanation of why the 95 **AND** 87 are **NOT** prime, e.g. • 87 is divisible by 3 and/or 29 **AND** 95 is divisible by 5 and/or 19 • 87 is in the 3 times table **AND** 95 is in the 5 times table • 95 is divisible by five because every number in the five times table ends in five or zero. 87 is divisible by three because 9 is in the three times table so is ninety. Ninety minus three is 87 • 8 + 7 = 15 and 15 is divisible by 3 **AND** 95 is divisible by 5	**1m**	No mark is awarded for circling '89' alone. Both non-primes must be explained correctly for the award of the mark. **Do not** accept vague or incomplete explanations, e.g. • The other 2 numbers have more than 2 factors (vague) • 87 is divisible by 3 (incomplete). **Do not** accept explanations which include incorrect mathematics or incorrect information that is relevant to the explanation, e.g. • 3 × 27 = 87 • 89 has three factors • no numbers go into 89

Qu.	Requirement	Mark	Additional guidance
19	Award **TWO** marks for the correct answer of 3.75 If the answer is incorrect, award **ONE** mark for evidence of an appropriate method, e.g. • 60 ÷ 4 = 15 250 × 15 = 3750 3750 ml ÷ 1000 = **OR** • 250 ÷ 4 = 62.5 ml per second 62.5 × 60 = 3750 3750 ml ÷ 1000 = **OR** • 60 ÷ 4 = 15, so there are 15 lots of 4 seconds in 1 minute so there are 15 bottles per minute. There are 4 bottles in 1 litre 15 ÷ 4 =	**Up to 2m**	Accept for **TWO** marks, 3,750ml for final answer in working and the answer box blank **OR** 3,750 in the answer box where the litres has been replaced with millilitres. Accept for **ONE** mark 3,750 litres (l) in the answer box **OR** the final answer in working and answer box blank. Answer need not be obtained for the award of **ONE** mark.
20	Award **TWO** marks for two boxes ticked correctly, as shown: $\frac{1}{20}$ ☐ $\frac{20}{40}$ ☐ $\frac{1}{5}$ ☑ $\frac{3}{15}$ ☑ $\frac{2}{100}$ ☐ If the answer is incorrect, award **ONE** mark for: • only one box ticked correctly and no incorrect boxes ticked • two boxes ticked correctly and one incorrect box ticked.	**Up to 2m**	Accept alternative unambiguous positive indication of the correct answer, e.g. Y.

Qu.	Requirement	Mark	Additional guidance
21	Rectangle divided, as shown:  **OR**  **OR**  **OR** 	**1m**	Accept slight inaccuracies in drawing provided the intention is clear.

Qu.	Requirement	Mark	Additional guidance
22a	$\frac{2}{5}$	**1m**	Accept equivalent fractions and decimals e.g. $\frac{4}{10}$ and 0.4
22b	Award **TWO** marks for the correct answer of 10.7 If the answer is incorrect, award **ONE** mark for evidence of an appropriate method, e.g. • 8.1 + 9.3 + 11.9 + 11.8 + 12.4 = 53.5 53.5 ÷ 5	**Up to 2m**	Answer need not be obtained for the award of **ONE** mark. Any correct rounding or truncating does not negate an appropriate method. Any value which does not result from correct rounding or truncating implies an additional step not shown.
23	Award **TWO** marks for the correct answer of 720 If the answer is incorrect, award **ONE** mark for evidence of an appropriate method, e.g. • 3 × 4 × 6 = 72 8 × 9 × 11 = 792 792 – 72 = Award **ONE** mark for sight of 792	**Up to 2m**	Answer need not be obtained for the award of **ONE** mark.