

KS2 Maths Paper

Marking Guide

Mathematics test mark schemes

Paper 1: Arithmetic

Paper 2: Reasoning

Paper 3: Reasoning

1. Introduction

The Standards and Testing Agency (STA) is responsible for the development and delivery of statutory tests and assessments. STA is an executive agency of the Department for Education.

The 2019 tests assess the national curriculum. This test has been developed to meet the specification set out in the [test framework](#)¹ for mathematics at key stage 2.

A new test and new mark schemes will be produced each year.

Key stage 2 tests are marked by external markers, who receive training to ensure the published mark schemes are applied consistently and fairly. The mark schemes are provided to show teachers how the tests are marked. The pupil examples are based on responses gathered from the test trialling process.

Scaled score conversion tables are not included in this document. Conversion tables will be produced as part of the standards maintenance process. [Scaled score conversion tables](#)² for the 2019 tests will be published in July 2019. The standards confirmation meeting will take place in June 2019.

2. Structure of the test

The test comprises:

- Paper 1: arithmetic (40 marks)
- Paper 2: reasoning (35 marks)
- Paper 3: reasoning (35 marks).

3. Content domain coverage

The 2019 test meets the specification in the test framework. Table 1 sets out the areas of the content domain that are assessed in papers 1, 2 and 3.

The references are taken from the test framework. A question assessing 4C7, for example, sets out to 'multiply two-digit and three-digit numbers by a one-digit number using a formal written layout' and is taken from the year 4 programme of study.

¹ www.gov.uk/government/publications/key-stage-2-mathematics-test-framework

² www.gov.uk/guidance/scaled-scores-at-key-stage-2

4. Explanation of the mark schemes

The marking information for each question is set out in the form of tables (sections 7, 8 and 9).

The purpose of the mark scheme is to define the acceptable answers for each question within the test. Answers other than those listed may be acceptable if they meet the marking criteria.

The '**Qu.**' column on the left-hand side of each table provides a quick reference to the question number and part.

The '**Requirement**' column may include two types of information:

- a statement of the requirements for the award of each mark, with an indication of whether credit can be given for an appropriate method
- examples of some different types of correct answer.

The '**Mark**' column indicates the total number of marks available for each question part.

The '**Additional guidance**' column indicates alternative acceptable answers and guidance, such as the range of acceptable answers, where necessary. This column may also provide details of specific types of answer which are unacceptable. For most questions, however, there will be unacceptable answers that are not listed.

5. General marking guidance

5.1 Applying the mark schemes

To ensure consistency of marking, the most frequent procedural queries are listed in section 5.2 along with the action the marker will take. This is followed by further guidance in section 6 relating to marking questions involving money, time and other measures. Unless otherwise specified in the mark scheme, markers will apply these guidelines in all cases.

A small number of general marking principles have been changed this year to clarify the guidance. This does not change the underlying principles or how they are applied.

Recording marks awarded

Pupils' test papers are scanned so that marking can be conducted on screen by trained markers.

For each question, markers record the award of 3, 2, 1 or 0 marks as appropriate, according to the mark scheme criteria. There is provision in the software to record questions not attempted. The software aggregates marks automatically.

5.2 General marking principles

Table 2: General marking principles for all papers

<p>1. The answer does not match closely any of the examples given in the mark scheme.</p>	<p>Markers will use their judgement to decide whether the answer corresponds with details in the 'Requirement' column of the mark scheme. Reference will also be made to the 'Additional guidance' column.</p>
<p>2. The answer is provided in a non-standard way.</p>	<p>Pupils may provide evidence in any form as long as its meaning can be understood. Diagrams, symbols or words are acceptable for explanations or for presenting an answer.</p>
<p>3. The correct answer or working has been crossed out or erased and not replaced.</p>	<p>The mark(s) will not be awarded for crossed-out or erased answers or working.</p>
<p>4. More than one answer is given.</p>	<p>If all answers given are correct (or a range of answers is given, all of which are correct), the mark(s) will be awarded unless the mark scheme states otherwise. If both correct and incorrect answers are given, the mark(s) will not be awarded unless the mark scheme states otherwise.</p>
<p>5. No answer is given in the expected place, but the correct answer is given elsewhere.</p>	<p>Where a pupil has unambiguously indicated the correct answer, the mark(s) will be awarded. In particular, where a word or number is expected, a pupil may meet the requirement by annotating a graph or labelling a diagram elsewhere in the question.</p>
<p>6. The answer is correct, but the wrong working is shown.</p>	<p>A correct final answer will be awarded the mark(s).</p>
<p>7. The pupil has used alternative notation for a decimal point in a number.</p>	<p>No alternative notation is accepted as representing a decimal point in a number, e.g. a comma.</p> <p>Refer to section 6 for guidance on marking specific types of question.</p>
<p>8. The pupil has used a symbol as a thousands separator.</p>	<p>If the pupil has used a comma as a thousands separator (positioned either correctly or incorrectly) and the digits are in the correct order, then the mark(s) will be awarded.</p> <p>If any other symbol, e.g. decimal point or apostrophe, is used, the mark(s) will not be awarded, although method marks may still be available.</p>

<p>9. The answer in the answer box is wrong due to a transcription error.</p>	<p>A transcription error occurs when a pupil miscopies their answer from the end of their working into the answer box.</p> <p>Each part (integer, numerator, denominator) of a mixed number is considered separately when applying transcription error rules.</p> <p>Where appropriate, detailed guidance will be given in the mark scheme. For questions with no guidance, marks will only be awarded for a transcription error if the wrong answer is due to:</p> <ul style="list-style-type: none"> transposed digits in a number (e.g. 243 is written as 324) <p>OR</p> <ul style="list-style-type: none"> one digit changed in a number of 4 or more digits (e.g. 2,345 is written as 2,845). <p>The mark(s) will not be awarded for any other transcription error including:</p> <ul style="list-style-type: none"> a decimal point positioned incorrectly (e.g. 12.34 is written as 1.234 or 1234) a change by a power of 10 (e.g. 200 is written as 20 or 2,000) a digit added or removed (e.g. 123,456 written as 1233,456 or 12,456) a negative sign added or removed.
<p>10. The answer is numerically or algebraically equivalent to the answer in the mark scheme.</p>	<p>Answers should be given as single values in their simplest form unless the mark scheme states otherwise, e.g. for $\square = 536 - 30$, the answer $500 + 6$ will not be awarded the mark.</p> <p>For integer answers, e.g. 20, the answer $\frac{20}{1}$ will be awarded the mark; $\frac{80}{4}$ will not be awarded the mark.</p> <p>For decimal answers that include recurring digit(s), there must be an unambiguous indication of the recurring digit(s). For example, for $\frac{1}{6}$, $0.1\dot{6}$ or $0.1\overline{6}$ will be awarded the mark and for $\frac{1}{7}$, $0.\dot{1}4285\dot{7}$ or $0.\overline{142857}$ will be awarded the mark.</p> <p>For fraction answers that can be expressed as a mixed number, the fraction paired with the integer must be a proper fraction, e.g. $1\frac{6}{4}$ will not be awarded the mark although method marks may still be available.</p> <p>Where alternative responses are acceptable, this will be indicated in the 'Additional guidance' column.</p>

Table 3: General marking principles for paper 1 only (arithmetic)

<p>11. The answer in the answer box is wrong due to a misread of numbers given in the question.</p>	<p>Misreads are not allowed in Paper 1; the mark(s) will not be awarded.</p>
<p>12. The pupil has not recorded their working beneath the given long multiplication or long division.</p>	<p>If a pupil carries out their working somewhere on the page other than beneath the given question as expected, then the pupil must start by rewriting the original question in order for it to be considered as a formal method.</p> <p>Please note that the operation sign does not need to be given for long multiplication, provided the pupil's working shows the intention to multiply.</p>
<p>13. The answer to the long division question expresses a remainder.</p>	<p>If a pupil reaches an integer answer using a formal method with no more than one arithmetic error, for example 25, then the mark(s) will be awarded for 25 r0 or 25.0, but the mark(s) will not be awarded for an answer of 250</p> <p>For answers with a remainder, the remainder must be expressed correctly.</p> <p>If a pupil shows a remainder that is the same size as the divisor or larger, for example, a remainder of 28 or 29 when dividing by 28, the mark(s) will not be awarded because the method is incomplete.</p> <p>If a pupil reaches a non-integer answer using a formal method with no more than one arithmetic error, for example when dividing by 28, the pupil reaches the answer 6 r14, then the mark(s) will be awarded for $6\frac{14}{28}$ or 6.5, but the mark(s) will not be awarded for $6\frac{14}{28}$ or 6.14 or 614</p>
<p>14. The long division method involves subtracting chunks of different sizes.</p>	<p>If a pupil's formal method involves subtracting chunks, it is not necessary to show a separate addition of the chunks. If the answer is not the correct total for their chunks, then that is treated as one arithmetic error.</p> <p>A method is considered as chunking when the size of the chunks are shown alongside the algorithm.</p> <p>It should be noted that this method will only be accepted if all chunks are of different sizes.</p>

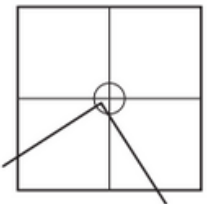
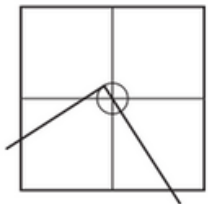
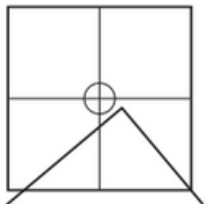
Table 4: General marking principles for papers 2 and 3 only (reasoning)

<p>15. More than one method is given.</p>	<p>If a pupil gives more than one method, then the intended method is taken as the one which leads to the answer in the answer box or an identified answer elsewhere. If no answer is given, then all methods must be appropriate for the method mark(s) to be awarded.</p>
<p>16. There appears to be a misread of numbers or information given in the question that affects the pupil's working and/or explanation.</p>	<p>This occurs when a pupil misreads a number given in the question and consistently uses a different number that does not alter the original intention or difficulty of the question. For example, if 243 is misread and written as 248, both numbers may be regarded as comparable in difficulty. However, if 243 is misread and written as 245 or 240, the misread number may be regarded as making the question easier. The misread of a number may affect the award of marks. Any misread number must be seen, not implied.</p> <p>Where appropriate, detailed guidance will be given in the mark scheme. If no guidance is given, markers will examine each case to decide whether the mark(s) will be awarded.</p> <p>The mark(s) will not be awarded if:</p> <ul style="list-style-type: none"> • it is a ONE-mark question • there is more than one misread number in a question • the mathematics is simplified • it is an 'explain' question • it is a misread of other information (not numbers) • the misread number is the same as any other number in the question. <p>For TWO-mark questions that have a method mark, one mark will be awarded if an appropriate method is correctly followed through with the misread number to give the correct follow-through answer, provided the mathematics has not been simplified.</p> <p>For THREE-mark questions, refer to the additional guidance.</p>
<p>17. A misread or an arithmetic error results in an answer with multiple decimal places.</p>	<p>In some instances, a misread or an arithmetic error in a method leads to an answer with one or more decimal places. In such cases, the method mark(s) will be awarded for an answer that is correctly truncated or rounded provided the method is appropriate and the additional guidance does not specify otherwise. For example, 1.2345 is truncated to 1.2</p>

<p>18. The pupil has reversed values within a calculation involving subtraction or division.</p>	<p>When values within the calculation are reversed, the mark(s) will only be awarded when the answer corresponds to the correct calculation. For example, if the correct calculation is $12 \div 4$, the method mark(s) may be awarded for $4 \div 12 = 3$, but not for an answer other than 3</p> <p>Reversed values within a calculation are not acceptable in 'explain' questions.</p>
<p>19. The pupil omits an operation sign within their working.</p>	<p>If the correct sign of +, −, ×, or ÷ for an arithmetic operation is missing, then the mark(s) will only be awarded if the working shown by the pupil is clear enough to indicate that the required operation has been performed. This applies even if the results of the required operation are incorrect. Where carrying or decomposition figures are seen, this is evidence of intention. For example, where the following is seen in working, the layout of the response implies addition or subtraction:</p> $\begin{array}{r} 456 \\ 123 \\ \hline \hline \end{array}$ <ul style="list-style-type: none"> • if the answer is larger than the greater of the given values, e.g. 679, then addition is implied • if the answer is less than the first given value, e.g. 323, then subtraction is implied.

<p>20. The pupil has used ‘an appropriate method’.</p>	<p>For some questions, the mark scheme allows the award of the method mark(s) for ‘evidence of an appropriate method’, even if the answer is missing or incorrect. Refer to the ‘Additional guidance’ column where appropriate.</p> <p>For the award of the method mark(s) for an appropriate method, there must be evidence of all the steps of the appropriate method (i.e. any method that would lead to the correct answer if there were no arithmetic errors and no additional steps).</p> <p>This means that, for every step, either:</p> <ul style="list-style-type: none"> • the appropriate calculation to be carried out must be shown <p>OR</p> <ul style="list-style-type: none"> • if the calculation has not been written down, the correct answer or correct follow-through answer must be shown. <p>Where the calculation shown would lead to a correct final answer, even if the processed numbers do not appear to be taken from the question, a method mark may be awarded unless the mark scheme specifies otherwise.</p>
<p>21. The pupil has used a trial and improvement method.</p>	<p>‘Trial and improvement’ is regarded as an acceptable method, unless the mark scheme states otherwise.</p> <p>For a ‘trial and improvement’ method to be awarded the method mark(s):</p> <ul style="list-style-type: none"> • there must be at least 3 trials, carried out correctly, which all reduce the range in which the answer is known to lie • there can be additional trials, which are correctly or incorrectly carried out, and which may not reduce the range in which the answer is known to lie • a final answer is not needed, unless the mark scheme states otherwise.

<p>22. The answer in the answer box is wrong but the correct answer is reached in the working.</p>	<p>Extra working occurs when a pupil writes the correct answer in their working, and then continues to process the information further.</p> <p>When the answer in the answer box is wrong and does not match the answer reached in the working, it is impossible to know why the pupil has written a different answer and it is assumed that extra working has occurred. GMP 9 on transcription errors still applies.</p> <p>If the extra working does not contradict the pupil's appropriate method, the method mark(s) will be awarded.</p> <p>If the extra working contradicts the pupil's appropriate method, the method mark(s) will not be awarded.</p>
<p>23. The pupil miscopies a value from one part of their method into the next part.</p>	<p>There will be instances when a pupil reaches a value in their working, then restarts from a different value.</p> <p>The mark(s) will not be awarded if:</p> <ul style="list-style-type: none"> • it is a ONE-mark question • there is more than one miscopy in the working • the miscopy does not follow transcription error rules (see GMP 9). <p>The method mark(s) will only be awarded if an appropriate method is correctly shown using the miscopied number (which must follow transcription error rules).</p>
<p>24. The correct answer is embedded in the working.</p>	<p>An embedded answer occurs when a pupil shows the correct answer within their working but then selects the wrong answer from their working as their final answer or leaves the answer box blank. For example, if a pupil shows $2.5 \times 6 = 3 \times 5$ in the last line of their working and writes 5 in the answer box, whereas the correct answer is 3, then this will affect the award of marks.</p> <p>Where appropriate, detailed guidance will be given in the mark scheme. If no guidance is given, markers will examine each case to decide whether the mark(s) will be awarded.</p> <p>For ONE-mark questions, the mark will not be awarded.</p> <p>For TWO-mark questions that have a method mark, one mark will be awarded, provided the pupil does not give redundant extra working that contradicts work already done or which adds to their appropriate method.</p> <p>For THREE-mark questions, refer to the additional guidance.</p>

<p>25. The phrase 'sight of' is used in the mark scheme.</p>	<p>For some questions, the mark scheme allows the mark(s) to be awarded for sight of a particular number or numbers within a method. Such numbers are the correct answers to partial steps within a method.</p>
<p>26. The answer correctly follows through from earlier incorrect work.</p>	<p>'Follow-through' marks for an answer will only be awarded when specifically stated in the mark scheme.</p>
<p>27. The pupil has drawn lines which do not meet at the correct point.</p>	<p>Where the mark scheme states that 'slight inaccuracies in drawing' should be accepted, this means that the mark(s) will be awarded for responses marked within or on a circle of radius 2mm with its centre at the correct point.</p> <div style="display: flex; justify-content: space-around; align-items: flex-start;"> <div style="text-align: center;">  <p>within the circle - accepted</p> </div> <div style="text-align: center;">  <p>on the circle - accepted</p> </div> <div style="text-align: center;">  <p>outside the circle - not accepted</p> </div> </div>

6. Marking specific types of question: summary of additional guidance

6.1 Answers involving money

	Accept	Do not accept
<p>Where the £ sign is given, e.g.</p> <p>£3.20, £7</p> <div style="border: 1px solid black; padding: 2px; display: inline-block;">£</div>	<p>£3.20 £7</p> <p> £7.00</p> <p>Any unambiguous indication of the correct amount, e.g.</p> <p>£3.20p</p> <p>£3 20 pence</p> <p>£3 20</p> <p>£3-20</p> <p>£3:20</p> <p>£3;20</p>	<p>Incorrect placement of pounds or pence, e.g.</p> <p>£320</p> <p>£320p</p> <p>Incorrect placement of decimal point or incorrect use or omission of 0 or use of comma as a decimal point, e.g.</p> <p>£3.2</p> <p>£3 200</p> <p>£32 0</p> <p>£3-2-0</p> <p>£3,20</p>
<p>Where the p sign is given, e.g.</p> <p>40p</p> <div style="border: 1px solid black; padding: 2px; display: inline-block;">p</div>	<p>40p</p> <p>Any unambiguous indication of the correct amount, e.g.</p> <p>£0.40p</p> <p>0 40p</p> <p>£0-40p</p> <p>0:40p</p> <p>£0;40p</p>	<p>Incorrect or ambiguous use of pounds or pence or use of comma as a decimal point, e.g.</p> <p>0.40p</p> <p>£40p</p> <p>£0,40p</p>

	Accept	Do not accept
Where a unit is not given, e.g. £3.20, 40p <input type="text"/>	£3.20 40p 320p £0.40 Any unambiguous indication of the correct amount, e.g. £3.20p £0.40 pence £3 20 pence £0 40p £3 20 £0-40 £3-20 £0:40 £3:20 £0;40 £3;20 £.40 3.20 0.40 320 40 3 pounds 20	Incorrect or ambiguous use of pounds or pence or use of comma as a decimal point, e.g. £320 £40 £320p £40p £3.2 0.4 3.20p 0.40p £3,20 0,40 £0,40p

6.2 Answers involving time

	Accept	Do not accept
A time interval, e.g. 2 hours 30 minutes	2 hours 30 minutes Any unambiguous, correct indication, e.g. (0)2 h 30 150 minutes (0)2 h 30 min 150 (0)2 30 2.5 hours (0)2-30 2½ hours Digital electronic time, e.g. (0)2:30 (0)2;30	Incorrect or ambiguous time interval or use of comma as a decimal point, e.g. 2.30 230 2.3 2.30 min 2.3 hours 2,5 hours 2.3h 2,30 2 h 3 1 h 90 min

	Accept	Do not accept
A specific time, e.g. 8:40 am, 17:20	(0)8:40 am (0)8:40 twenty to nine Any unambiguous, correct indication, e.g. (0)8.40 (0)8;40 0840 (0)8 40 (0)8-40 Unambiguous change to 12 or 24-hour clock, e.g. 17:20 as 5:20 pm or 17:20 pm	Incorrect time, e.g. 8.4 am 8.40 pm Incorrect placement of separators, spaces, etc. or incorrect use or omission of 0 or use of a comma as a decimal point, e.g. 840 8:4:0 8.4 084 8,40

6.3 Answers involving measures

	Accept	Do not accept
Where units are given, e.g. 8.6 kg <div style="border: 1px solid black; padding: 2px; display: inline-block; margin: 2px;">kg</div> <div style="border: 1px solid black; padding: 2px; display: inline-block; margin: 2px;">m</div> <div style="border: 1px solid black; padding: 2px; display: inline-block; margin: 2px;">l</div>	8.6 kg Any unambiguous indication of the correct measurement, e.g. 8.60 kg 8.6000 kg 8 kg 600 g	Incorrect or ambiguous use of units or use of comma as a decimal point, e.g. 8600 kg 8 kg 600 8,60 kg 8,6000 kg

If a pupil gives an answer with a unit different from the unit in the answer box, then their answer must be equivalent to the correct answer provided, unless otherwise indicated in the mark scheme.

If a pupil leaves the answer box empty but writes the answer elsewhere on the page without any units, then that answer is assumed to have the units given in the answer box, subject to the conditions listed above.

7. Mark scheme

Qu..	Scheme	Requirements	Marks	Additional Guidance																									
1	PA1 Q1	9,060	1																										
2	PA1 Q2	4,654	1																										
3	PA2 Q2	6,521	1																										
4	PA2 Q1	<p>Award ONE mark for three correct answers, as shown:</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tbody> <tr> <td style="border: 2px solid black;">2</td> <td>×</td> <td style="border: 2px solid black;">7</td> <td>=</td> <td style="border: 2px solid black;">14</td> </tr> <tr> <td>×</td> <td style="background-color: #cccccc;"></td> <td>×</td> <td colspan="2" style="background-color: #cccccc;"></td> </tr> <tr> <td>3</td> <td>×</td> <td style="border: 2px solid black;">8</td> <td>=</td> <td>24</td> </tr> <tr> <td>=</td> <td style="background-color: #cccccc;"></td> <td>=</td> <td colspan="2" style="background-color: #cccccc;"></td> </tr> <tr> <td style="border: 2px solid black;">6</td> <td style="background-color: #cccccc;"></td> <td>56</td> <td colspan="2" style="background-color: #cccccc;"></td> </tr> </tbody> </table>	2	×	7	=	14	×		×			3	×	8	=	24	=		=			6		56				
2	×	7	=	14																									
×		×																											
3	×	8	=	24																									
=		=																											
6		56																											
5	PA1 Q6	7.897	1																										
6	PA1 Q7	80	1																										
7	PA1 Q8	10	1																										
8	PA1 Q11	72	1	Do not accept - 72																									
9	PA1 Q9	0	1																										
10	PA1 Q13	140	1																										
11	PA2 Q11	11a) 0.5 11b) £7.55	1 1	<p>Do not accept $\frac{1}{2}$ or any other fraction.</p> <p>Refer to section 6.3 on page 16 for additional guidance on marking answers involving measures.</p> <p>Refer to section 6.1 on pages 14 and 15 for additional guidance on marking answers involving money.</p>																									
12	PA2 Q15	50	1																										
13	PA1 Q14	362.7	1																										
14	PA1 Q17	111,000	1																										
15	PA1 Q18	600	1	Do not accept 600%																									

Qu..	Scheme	Requirements	Marks	Additional Guidance								
16	PA1 Q19	1.55	1									
17	PA1 Q20	0.007	1									
18	PA1 Q21	5.3	1									
19	PA1 Q22	$\frac{4}{5}$	1	Accept equivalent fractions or an exact decimal equivalent, e.g. 0.8								
20	PA1 Q24	$\frac{17}{20}$	1	Accept equivalent fractions or an exact decimal equivalent, e.g. 0.85								
21	PA1 Q25	<p>Award TWO marks for the correct answer of 32</p> <p>If the answer is incorrect, award ONE mark for the formal methods of division with no more than ONE arithmetic error, i.e.</p> <ul style="list-style-type: none"> long division algorithm, e.g. $\begin{array}{r} 32 \text{ r}10 \\ 27 \overline{)864} \\ \underline{- 810} \\ 64 \text{ (error)} \\ \underline{- 54} \\ 10 \end{array}$ <p>OR</p> $\begin{array}{r} 42 \text{ (error)} \\ 27 \overline{)864} \\ \underline{- 810} \quad 30 \times 27 \\ 54 \\ \underline{- 54} \quad 2 \times 37 \\ 0 \end{array}$ <ul style="list-style-type: none"> short division algorithm, e.g. $\begin{array}{r} 29 \text{ r}1 \text{ (error)} \\ 27 \overline{)862^4} \end{array}$	up to 2	<p>Working must be carried through to reach a final answer for the award of ONE mark.</p> <p>Short division methods must be supported by evidence of appropriate carrying figures to indicate the use of a division algorithm, and be a complete method. The carrying figure must be less than the divisor.</p>								
22	PA2 Q8	<p>a) 10 written in the first box, as shown:</p> <table border="1" style="margin-left: 20px;"> <tr> <td style="width: 50px; text-align: center;">10</td> <td style="width: 50px; text-align: center;">35</td> <td style="width: 50px; text-align: center;">110</td> <td style="width: 50px;"></td> </tr> </table> <p>b) 335 written in the last box, as shown:</p> <table border="1" style="margin-left: 20px;"> <tr> <td style="width: 50px;"></td> <td style="width: 50px; text-align: center;">35</td> <td style="width: 50px; text-align: center;">110</td> <td style="width: 50px; text-align: center;">335</td> </tr> </table>	10	35	110			35	110	335	1 1	
10	35	110										
	35	110	335									
23	PA2 Q9	<p>Award TWO marks for the correct answer of 82</p> <p>If the answer is incorrect, award ONE mark for evidence of an appropriate method, e.g.</p> <ul style="list-style-type: none"> $803 - 65 = 738$ $738 \div 9$ 	up to 2	<p>Answer need not be obtained for the award of ONE mark.</p> <p>If the pupil's evaluation contradicts the appropriate method, the method mark will not be awarded.</p>								

Qu..	Scheme	Requirements	Marks	Additional Guidance
24	PA1 Q27	189	1	Do not accept 189%
25	PA1 Q28	$\frac{13}{24}$	1	Accept equivalent fractions or an exact decimal equivalent, e.g. 0.5416 (accept any unambiguous indication of the recurring digits). Do not accept rounded or truncated decimals.
26	PA1 Q29	416	1	Do not accept 416%
27	PA3 Q1	£5,666	1	Refer to section 6.1 on pages 14 and 15 for additional guidance on marking answers involving money
28	PA3 Q2	2a) 6 2b) 5,000,000	1 1	Do not accept 60,000 or 60 thousands. Accept 5 million or five million Do not accept the answer 5
29	PA1 Q30	Award TWO marks for the correct answer of 477,792 If the answer is incorrect, award ONE mark for the formal method of long multiplication with no more than ONE arithmetic error, e.g. <ul style="list-style-type: none"> $\begin{array}{r} 5688 \\ \times \quad 84 \\ \hline 22752 \\ 455040 \\ \hline 477892 \text{ (error)} \end{array}$ OR $\begin{array}{r} 5688 \\ \times \quad 84 \\ \hline 22754 \text{ (error)} \\ 455040 \\ \hline 477794 \end{array}$ 	up to 2	Working must be carried through to reach the award of ONE mark. Do not award any marks if the error is in the place value, e.g. the omission of the zero when multiplying by tens: <ul style="list-style-type: none"> $\begin{array}{r} 5688 \\ \times \quad 84 \\ \hline 22752 \\ 45504 \text{ (place value error)} \\ \hline 68256 \end{array}$

Qu..	Scheme	Requirements	Marks	Additional Guidance								
30	PA1 Q32	$1\frac{1}{2}$ OR $\frac{3}{2}$	1	Accept equivalent mixed numbers, fractions or an exact decimal equivalent, e.g. 1.5								
31	PA1 Q5	297	1									
32	PA2 Q10	Second box only ticked correctly, as shown: number of tickets $\times 35 + 5$ <input checked="" type="checkbox"/> number of tickets $\times 5 + 35$ <input type="checkbox"/> number of tickets $+ 35 \times 5$ <input type="checkbox"/> number of tickets $+ 5 \times 35$ <input type="checkbox"/>	1	Accept alternative unambiguous positive indication of the correct answer, e.g. Y.								
33	PA2 Q14	Award TWO marks for the correct completion of the three numbers in the table, as shown: <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th></th> <th>Round 59,357</th> </tr> </thead> <tbody> <tr> <td>to the nearest 10,000</td> <td>60,000</td> </tr> <tr> <td>to the nearest 1,000</td> <td>59,000</td> </tr> <tr> <td>to the nearest 100</td> <td>59,400</td> </tr> </tbody> </table> If the answer is incorrect, award ONE mark for any two of the numbers rounded correctly.		Round 59,357	to the nearest 10,000	60,000	to the nearest 1,000	59,000	to the nearest 100	59,400	up to 2	Do not accept 9,000 or 400 for the second and third entries.
	Round 59,357											
to the nearest 10,000	60,000											
to the nearest 1,000	59,000											
to the nearest 100	59,400											

Continued on the next page.

Qu..	Scheme	Requirements	Marks	Additional Guidance
34	PA2 Q20	<p>Award TWO marks for two boxes ticked correctly, as shown:</p> <p style="text-align: center;"> $\frac{1}{40}$ <input type="checkbox"/> $\frac{20}{40}$ <input type="checkbox"/> $\frac{2}{5}$ <input checked="" type="checkbox"/> $\frac{10}{25}$ <input checked="" type="checkbox"/> $\frac{4}{100}$ <input type="checkbox"/> </p> <p>If the answer is incorrect, award ONE mark for:</p> <ul style="list-style-type: none"> only one box ticked correctly and no incorrect boxes ticked two boxes ticked correctly and one incorrect box ticked. 	up to 2	Accept alternative unambiguous positive indication of the correct answer, e.g. Y.
35	PA3 Q6	<p>Award TWO marks for the correct answer of £7.86</p> <p>If the answer is incorrect, award ONE mark for evidence of an appropriate method, e.g.</p> <ul style="list-style-type: none"> £5.35 + £6.79 = £12.14 £20 - £12.14 = <p>OR</p> <ul style="list-style-type: none"> £20 - £5.35 = £14.65 £14.65 - £6.79 = <p>OR</p> <ul style="list-style-type: none"> £20 - 535p - 679p = 	up to 2	<p>Answer need not be obtained for the award of ONE mark.</p> <p>Accept for ONE mark an answer of £786 OR £786p as evidence of an appropriate method.</p> <p>Refer to section 6.1 on pages 11 and 12 for additional guidance on marking answers involving money.</p>
36	PA3 Q8	<p>Award TWO marks for the correct answer of 799</p> <p>If the answer is incorrect, award ONE mark for evidence of an appropriate method, e.g.</p> <ul style="list-style-type: none"> 3724 + 477 = 4201 5000 - 4201 = <p>OR</p> <ul style="list-style-type: none"> 5000 - 3724 - 477 = <p>OR</p> <ul style="list-style-type: none"> 5000 - 3724 = 1276 - 477 = 	up to 2	Answer need not be obtained for the award of ONE mark.

Qu..	Scheme	Requirements	Marks	Additional Guidance
37	PA2 Q3	<p>Award ONE mark for the four numbers matched correctly, as shown:</p>	1	<p>Lines need not touch the numbers and ordinals, provided the intention is clear.</p> <p>Do not accept any number which has been matched to more than one ordinal.</p>
38	PA2 Q5	<p>Award TWO marks for three correct numbers, as shown:</p> <p><input type="text" value="120"/> 175 230 285 <input type="text" value="340"/> <input type="text" value="395"/></p> <p>Award ONE mark for:</p> <ul style="list-style-type: none"> any two numbers correctly placed <p>OR</p> <ul style="list-style-type: none"> if box 1 is correct, accept correct follow-through for box 3 from the incorrect value in box 2. 	up to 2	<p>Do not accept misreads for this question.</p>
39	PA2 Q6	100	1	

Continued on the next page.

Qu..	Scheme	Requirements	Marks	Additional Guidance
40	PA3 Q11	<p>Award TWO marks for all four given numbers placed completely correctly 7 times, as shown:</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid black; padding: 5px; text-align: center;"> <div style="border: 1px solid black; padding: 2px; font-size: 8px;">Prime numbers</div> <p>2 3 5</p> </div> <div style="border: 1px solid black; padding: 5px; text-align: center;"> <div style="border: 1px solid black; padding: 2px; font-size: 8px;">Factors of 15</div> <p>3 5</p> </div> <div style="border: 1px solid black; padding: 5px; text-align: center;"> <div style="border: 1px solid black; padding: 2px; font-size: 8px;">Factors of 18</div> <p>2 3 6</p> </div> </div> <p>If the answer is incorrect, award ONE mark for three of the given numbers all placed completely correctly, e.g.</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid black; padding: 5px; text-align: center;"> <div style="border: 1px solid black; padding: 2px; font-size: 8px;">Prime numbers</div> <p>2 3 5</p> </div> <div style="border: 1px solid black; padding: 5px; text-align: center;"> <div style="border: 1px solid black; padding: 2px; font-size: 8px;">Factors of 15</div> <p>3 4</p> </div> <div style="border: 1px solid black; padding: 5px; text-align: center;"> <div style="border: 1px solid black; padding: 2px; font-size: 8px;">Factors of 18</div> <p>2 3</p> </div> </div> <p>OR</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid black; padding: 5px; text-align: center;"> <div style="border: 1px solid black; padding: 2px; font-size: 8px;">Prime numbers</div> <p>2 3 5 6</p> </div> <div style="border: 1px solid black; padding: 5px; text-align: center;"> <div style="border: 1px solid black; padding: 2px; font-size: 8px;">Factors of 15</div> <p>3 5</p> </div> <div style="border: 1px solid black; padding: 5px; text-align: center;"> <div style="border: 1px solid black; padding: 2px; font-size: 8px;">Factors of 18</div> <p>2 3 6</p> </div> </div> <p>OR</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid black; padding: 5px; text-align: center;"> <div style="border: 1px solid black; padding: 2px; font-size: 8px;">Prime numbers</div> <p>2 3 5</p> </div> <div style="border: 1px solid black; padding: 5px; text-align: center;"> <div style="border: 1px solid black; padding: 2px; font-size: 8px;">Factors of 15</div> <p>3 5 6</p> </div> <div style="border: 1px solid black; padding: 5px; text-align: center;"> <div style="border: 1px solid black; padding: 2px; font-size: 8px;">Factors of 18</div> <p>2 3 6</p> </div> </div>	up to 2	Accept the numbers in any order. Ignore any additional numbers not given in the question.

Continued on the next page.

Qu..	Scheme	Requirements	Marks	Additional Guidance										
41	PA3 Q18	<p>Award TWO marks for three boxes ticked correctly, as shown:</p> <table style="margin-left: auto; margin-right: auto;"> <tr> <td style="text-align: center;">$\frac{1}{2}$</td> <td style="text-align: center;"><input checked="" type="checkbox"/></td> </tr> <tr> <td style="text-align: center;">$\frac{2}{5}$</td> <td style="text-align: center;"><input checked="" type="checkbox"/></td> </tr> <tr> <td style="text-align: center;">$\frac{3}{4}$</td> <td style="text-align: center;"><input type="checkbox"/></td> </tr> <tr> <td style="text-align: center;">$\frac{7}{16}$</td> <td style="text-align: center;"><input checked="" type="checkbox"/></td> </tr> <tr> <td style="text-align: center;">$\frac{23}{30}$</td> <td style="text-align: center;"><input type="checkbox"/></td> </tr> </table> <p>Award ONE mark for:</p> <ul style="list-style-type: none"> • only two boxes ticked correctly and no incorrect boxes ticked <p>OR</p> <ul style="list-style-type: none"> • three boxes ticked correctly and one incorrect box ticked. 	$\frac{1}{2}$	<input checked="" type="checkbox"/>	$\frac{2}{5}$	<input checked="" type="checkbox"/>	$\frac{3}{4}$	<input type="checkbox"/>	$\frac{7}{16}$	<input checked="" type="checkbox"/>	$\frac{23}{30}$	<input type="checkbox"/>	up to 2	Accept alternative unambiguous positive indication of the correct answer, e.g. Y.
$\frac{1}{2}$	<input checked="" type="checkbox"/>													
$\frac{2}{5}$	<input checked="" type="checkbox"/>													
$\frac{3}{4}$	<input type="checkbox"/>													
$\frac{7}{16}$	<input checked="" type="checkbox"/>													
$\frac{23}{30}$	<input type="checkbox"/>													

Continued on the next page.

Qu..	Scheme	Requirements	Marks	Additional Guidance
42	PA3 Q19	<p>Award THREE marks for the correct answer of 6,802</p> <p>If the answer is incorrect, award TWO marks for:</p> <ul style="list-style-type: none"> evidence of an appropriate complete method which contains no more than one arithmetic error, e.g. $\begin{array}{r} 47 \\ \times \quad 62 \\ \hline 3504 \text{ (error)} \end{array} \qquad \begin{array}{r} 108 \\ \times \quad 36 \\ \hline 3888 \end{array}$ $3,504 + 3,888 = 7,392$ <p>Award ONE mark for:</p> <ul style="list-style-type: none"> evidence of an appropriate method with more than one arithmetic error. <p>OR</p> <ul style="list-style-type: none"> sight of 2,914 as evidence of long multiplication step (47×62) completed correctly. <p>OR</p> <ul style="list-style-type: none"> sight of 3,888 as evidence of long multiplication step (108×36) completed correctly. 	up to 3	<p>Answer need not be obtained for the award of ONE mark.</p> <p>A misread of a number may affect the award of marks. No marks are awarded if there is more than one misread or if the mathematics is simplified.</p> <p>TWO marks will be awarded if an appropriate method with the misread number is followed through correctly.</p> <p>ONE mark will be awarded for evidence of an appropriate method with the misread number followed through correctly with no more than one arithmetic error</p>

Continued on the next page.

Qu..	Scheme	Requirements	Marks	Additional Guidance
43	PA2 Q21	<p>Explanation that recognises that sequence does not always increase by 3 with reference to data e.g.</p> <ul style="list-style-type: none"> The difference between 2008 and 2010 is 2 years not 3 so it is not always 3 years. it would be 2011 if it was every 3 years. <p>OR</p> <p>Explanation that demonstrates that the sequence does not always increase by 3, but does not reference specific years from the data e.g.</p> <ul style="list-style-type: none"> John's trip to Paris was sometimes 2 years apart instead of 3 years Not all the years have 3 years difference between. 	1	<p>Do not accept vague or incomplete explanations e.g.</p> <ul style="list-style-type: none"> It does not always increase by three. it should be 2011. The difference can be 2 or 3 years at different times. <p>Do not accept explanation which include incorrect mathematics or incorrect information that is relevant to the explanation e.g.</p> <p>$2005 + 3 = 2008 + 2 = 2010$</p>

END OF MARKING SCHEME