

2025 national curriculum tests

Key stage 2

Mathematics test mark schemes

Paper 1: arithmetic

Paper 2: reasoning

Paper 3: reasoning



Standards
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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 2025 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 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 2025 tests will be published in July 2025. The standards confirmation meeting will take place in June 2025.

2. Structure of the test

The key stage 2 mathematics test comprises:

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

3. Content domain coverage

The 2025 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

Table 1: Content domain coverage of the 2025 key stage 2 mathematics test

Where 2 or more references are given, the primary reference is given first.

Paper 1: arithmetic		Paper 2: reasoning		Paper 3: reasoning	
Qu.	Content domain reference	Qu.	Content domain reference	Qu.	Content domain reference
1	4N3a	1	3G4b	1	5N3a
2	3C2	2a	3N2b	2	6N2
3	4C6b	2b	4N2b	3	5N4/6N4
4	5F10/5F8	3	4M1/4M9	4	5M9a
5	3C2/3C1	4	4P3a	5	4P2/4P3a
6	4C6a	5	3N1	6	4C8/3M9c
7	4C7	6a	6N3	7	5F2a
8	4C6b	6b	6N2/6N6/5C1	8	4M9/4F10b/4C4
9	3C2/3C4	7a	6S1/5M6	9a	4N5/4N4a
10	3C6/3C8	7b	6S1/5M6/6N4	9b	4N5/4N4a
11	6F5a	8	5P2/4G2c	10	5S1/5M9b/5M9c
12	4C6b	9a	3C6/3C8	11	5F6b
13	4C7	9b	3C6/3C8	12	3M4b/4M4a/4M4b
14	6C7a	10	6G3b	13	5F6a/5F3/5F8
15	4C6b	11	5C4/5C1	14a	6A2/5C5c
16	6F9b	12	5M5/6M5	14b	6A2/5C5d
17	6F9a	13	5C8b	15a	6C6/6C8
18	5F4	14	5C4/6F9b/5S1	15b	6C6/6C8
19	4C6b/5C7b/5C6a	15	6F11/6R2	16	6S1/3F1b
20	5C2	16	4F10b/6F11	17	6C8/6C7a/6C7b
21	5C7b	17	6R1/5M9a/6M9	18a	5M5
22	5F4	18	5F3	18b	6M5
23	5F10/4F8	19	6C8/5M9a	19	6R1/5M9b/5C7b
24	6F4	20	6A5/6A4/6C5	20	6F5a
25	6R2	21	5F10/5C6b/6C8	21	5C5a/4N1
26	6F5b	22	6M8a/5F5	22	6G4b/6G4a
27	6R2	23	6R1/6R4		
28	6C7b				
29	6F4				
30	6C7a				
31	6C9				
32	6R2				
33	5F5				
34	6C7b				
35	5F5				
36	6F4				

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, 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.

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

1. The answer does not closely match any of the examples given in the mark scheme.	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.
2. The answer is provided in a non-standard way.	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.
3. The correct answer or working has been crossed out or erased and not replaced.	The mark(s) will not be awarded for crossed-out or erased answers or working.
4. More than one answer is given.	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.
5. No answer is given in the expected place, but the correct answer is given elsewhere.	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.
6. The answer is correct, but the wrong working is shown.	A correct final answer will be awarded the mark(s).
7. The pupil has used alternative notation for a decimal point in a number.	No alternative notation is accepted as representing a decimal point in a number, for example, a comma. Refer to section 6 for guidance on marking specific types of question.
8. The pupil has used a symbol as a thousands separator.	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. If any other symbol, for example, a decimal point or apostrophe, is used, the mark(s) will not be awarded, although method marks may still be available.

9. The answer in the answer box is wrong due to a transcription error.	A transcription error occurs when a pupil miscopies their answer from the end of their working into the answer box. Each part (integer, numerator, denominator) of a mixed number is considered separately when applying transcription error rules. 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: - transposed digits in a number (for example, 243 is written as 324) OR - one digit changed in a number of 4 or more digits (for example, 2,345 is written as 2,845) The mark(s) will not be awarded for any other transcription error including: - a decimal point positioned incorrectly (for example, 12.34 is written as 1.234 or 1234) - a change by a power of 10 (for example, 200 is written as 20 or 2,000) - a digit added or removed (for example, 123,456 written as 1233,456 or 12,456) - a negative sign added or removed
10. The answer is numerically or algebraically equivalent to the answer in the mark scheme.	Answers should be given as single values in their simplest form unless the mark scheme states otherwise, for example, for $\square = 536 - 30$, the answer $500 + 6$ will not be awarded the mark. For integer answers, for example, 20, the answer $\frac{20}{1}$ will be awarded the mark; $\frac{80}{4}$ will not be awarded the mark. 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 $\frac{1}{7}$, $0.14285\dot{7}$ or $0.14285\overline{7}$ will be awarded the mark. For fraction answers that can be expressed as a mixed number, the fraction paired with the integer must be a proper fraction, for example, $1\frac{6}{4}$ will not be awarded the mark although method marks may still be available. Where alternative responses are acceptable, this will be indicated in the 'Additional guidance' column.

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

11. The answer in the answer box is wrong due to a misread of numbers given in the question.	Misreads are not allowed in Paper 1; the mark(s) will not be awarded.
12. The pupil has not recorded their working beneath the given long multiplication or long division.	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. 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.
13. The answer to the long division question expresses a remainder.	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 For answers with a remainder, the remainder must be expressed correctly. 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. 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
14. The long division method involves subtracting chunks of different sizes.	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. A method is considered as chunking when the size of the chunks are shown alongside the algorithm. It should be noted that this method will only be accepted if all chunks are of different sizes.

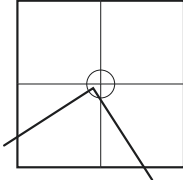
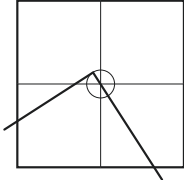
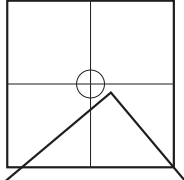
Table 4: General marking principles for papers 2 and 3 only (reasoning)

15. More than one method is given.	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.
16. There appears to be a misread of numbers or information given in the question that affects the pupil's working and/or explanation.	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. 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. The mark(s) will not be awarded if: • 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 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. For THREE-mark questions, refer to the additional guidance.
17. A misread or an arithmetic error results in an answer with multiple decimal places.	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

18. The pupil has reversed values within a calculation involving subtraction or division.	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 Reversed values within a calculation are not acceptable in 'explain' questions.
19. The pupil omits an operation sign within their working.	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: $\begin{array}{r} 456 \\ 123 \\ \hline \end{array}$ • if the answer is larger than the greater of the given values, for example, 679, then addition is implied • if the answer is less than the first given value, for example, 323, then subtraction is implied

20. The pupil has used 'an appropriate method'.	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. For the award of the method mark(s) for an appropriate method, there must be evidence of all the steps of the appropriate method (any method that would lead to the correct answer if there were no arithmetic errors and no additional steps). This means that, for every step, either: - the appropriate calculation to be carried out must be shown OR - if the calculation has not been written down, the correct answer or correct follow-through answer must be shown 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.
21. The pupil has used a trial and improvement method.	'Trial and improvement' is regarded as an acceptable method, unless the mark scheme states otherwise. For a 'trial and improvement' method to be awarded the method mark(s): - 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

22. The answer in the answer box is wrong but the correct answer is reached in the working.	Extra working occurs when a pupil writes the correct answer in their working, and then continues to process the information further. 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. If the extra working does not contradict the pupil's appropriate method, the method mark(s) will be awarded. If the extra working contradicts the pupil's appropriate method, the method mark(s) will not be awarded.
23. The pupil miscopies a value from one part of their method into the next part.	There will be instances when a pupil reaches a value in their working, then restarts from a different value. The mark(s) will not be awarded if: • 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) 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).
24. The correct answer is embedded in the working.	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. 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. For ONE-mark questions, the mark will not be awarded. 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. For THREE-mark questions, refer to the additional guidance.

25. The phrase 'sight of' is used in the mark scheme.	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.
26. The answer correctly follows through from earlier incorrect work.	'Follow-through' marks for an answer will only be awarded when specifically stated in the mark scheme.
27. The pupil has drawn lines which do not meet at the correct point.	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.  within the circle – accepted  on the circle – accepted  outside the circle – not accepted

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

6.1 Answers involving money

	Accept	Do not accept
Where the £ sign is given, for example: £3.20, £7 £	£3.20 £7 £7.00 Any unambiguous indication of the correct amount, for example: £3.20p £3 20 pence £3 20 £3-20 £3:20 £3;20	Incorrect placement of pounds or pence, for example: £320 £320p Incorrect placement of decimal point or incorrect use or omission of 0 or use of comma as a decimal point, for example: £3.2 £3 200 £32 0 £3-2-0 £3,20
Where the p sign is given, for example: 40p p	40p Any unambiguous indication of the correct amount, for example: £0.40p 0 40p £0-40p 0:40p £0;40p	Incorrect or ambiguous use of pounds or pence or use of comma as a decimal point, for example: 0.40p £40p £0,40p

	Accept	Do not accept
Where a unit is not given, for example: £3.20, 40p 	£3.20 40p 320p £0.40 Any unambiguous indication of the correct amount, for example: £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, for example: £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, for example: 2 hours 30 minutes	2 hours 30 minutes Any unambiguous, correct indication, for example: (0)2 h 30 150 minutes (0)2 h 30 min 150 (0)2 30 2.5 hours (0)2-30 2 $\frac{1}{2}$ hours Digital electronic time, for example: (0)2:30 (0)2;30	Incorrect or ambiguous time interval or use of comma as a decimal point, for example: 2.30 230 2.3 2.30 min 2.3 hours 2,5 hours 2.3 h 2,30 2h 3 1 h 90 min

	Accept	Do not accept
A specific time, for example: 8:40 am, 17:20	(0)8:40 am (0)8:40 twenty to nine Any unambiguous, correct indication, for example: (0)8.40 (0)8;40 0840 (0)8 40 (0)8-40 Unambiguous change to 12 or 24-hour clock, for example: 17:20 as 5:20 pm or 17:20 pm	Incorrect time, for example: 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, for example: 840 8:4:0 8.4 084 8,40

6.3 Answers involving measures

	Accept	Do not accept
Where units are given, for example: 8.6 kg kg m l	8.6 kg Any unambiguous indication of the correct measurement, for example: 8.60 kg 8.6000 kg 8 kg 600 g	Incorrect or ambiguous use of units or use of comma as a decimal point, for example: 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 schemes for Paper 1: arithmetic

Qu.	Requirement	Mark	Additional guidance
1	500	1m	
2	71	1m	
3	0	1m	
4	99.433	1m	
5	896	1m	
6	7	1m	
7	4,992	1m	
8	360	1m	
9	54	1m	
10	8	1m	
11	$\frac{10}{30}$	1m	Accept equivalent fractions or the exact decimal equivalent, e.g. $\frac{1}{3}$ or $0.\dot{3}$ (accept any unambiguous indication of the recurring digits). Do not accept rounded or truncated decimals.
12	90	1m	
13	6,456	1m	

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Qu.	Requirement	Mark	Additional guidance
14	Award TWO marks for the correct answer of 19,648 If the answer is incorrect, award ONE mark for the formal method of long multiplication with no more than ONE arithmetic error, e.g. $\begin{array}{r} 614 \\ \times 32 \\ \hline 1228 \\ 18420 \\ \hline 19640 \text{ (error)} \end{array}$ - OR $\begin{array}{r} 614 \\ \times 32 \\ \hline 1226 \text{ (error)} \\ 18420 \\ \hline 19646 \end{array}$	Up to 2m	Working must be carried through to reach a final answer for 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. $\begin{array}{r} 614 \\ \times 32 \\ \hline 1228 \\ 1842 \text{ (place value error)} \\ \hline 3070 \end{array}$
15	500	1m	
16	26.7	1m	
17	32.68	1m	
18	$\frac{2}{9}$	1m	Accept equivalent fractions or the exact decimal equivalent, e.g. $\frac{4}{18}$ or $0.\dot{2}$ (accept any unambiguous indication of the recurring digits). Do not accept rounded or truncated decimals.
19	128	1m	
20	951,889	1m	
21	456	1m	
22	$1\frac{1}{12}$ OR $\frac{13}{12}$	1m	Accept equivalent mixed numbers, fractions or the exact decimal equivalent, i.e. $1.08\dot{3}$ (accept any unambiguous indication of the recurring digits). Do not accept rounded or truncated decimals.

Qu.	Requirement	Mark	Additional guidance
23	13.4	1m	
24	$4\frac{1}{5}$ OR $\frac{21}{5}$	1m	Accept equivalent mixed numbers, fractions or the exact decimal equivalent, i.e. 4.2
25	43	1m	Do not accept 43%
26	$\frac{5}{24}$	1m	Accept equivalent fractions or the exact decimal equivalent, e.g. $\frac{10}{48}$ or 0.208 $\dot{3}$ (accept any unambiguous indication of the recurring digits). Do not accept rounded or truncated decimals.
27	437	1m	Do not accept 437%

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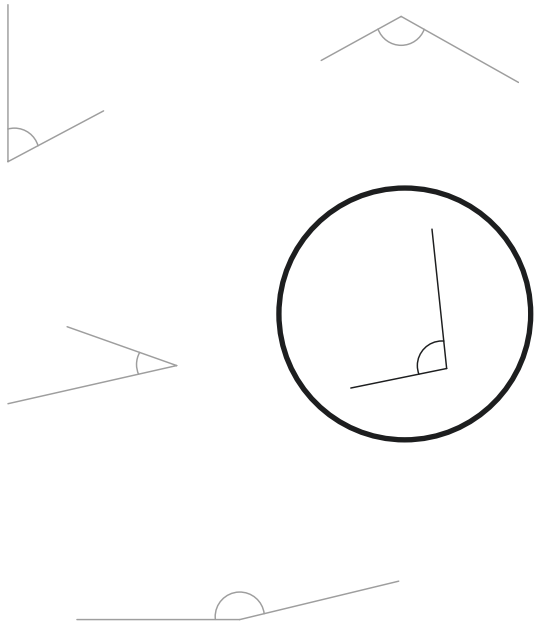
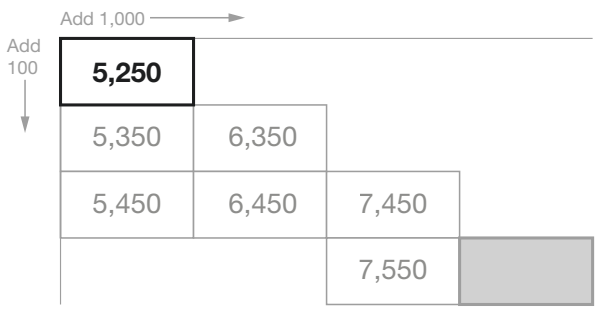
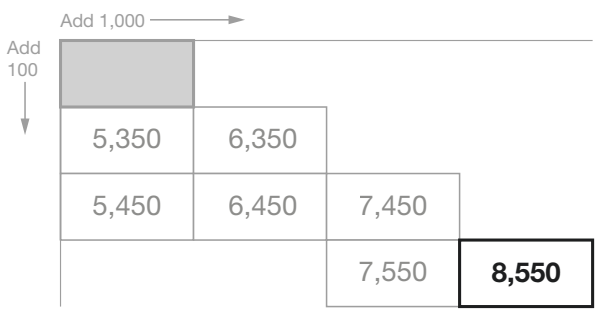
Qu.	Requirement	Mark	Additional guidance
28	Award TWO marks for a correct answer of 52 If the answer is incorrect, award ONE mark for the formal methods of division with no more than ONE arithmetic error, e.g. - long division algorithm, e.g. $\begin{array}{r} 52 \text{ r}2 \\ 17 \overline{) 884} \\ \underline{- 850} \\ 34 \\ \underline{- 32} \text{ (error)} \\ 2 \end{array}$ OR $\begin{array}{r} 53 \text{ (error)} \\ 17 \overline{) 884} \\ \underline{- 850} \\ 34 \\ \underline{- 34} \\ 0 \end{array} \quad \begin{array}{l} 50 \times 17 \\ 2 \times 17 \end{array}$ - short division algorithm, e.g. $\begin{array}{r} 5 \ 3 \text{ (error)} \\ 17 \overline{) 88^3 4} \end{array}$	Up to 2m	Working must be carried through to reach a final answer for the award of ONE mark. 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.
29	$2 \frac{17}{30}$ OR $\frac{77}{30}$	1m	Accept equivalent fractions or the exact decimal equivalent, i.e. 2.56 (accept any unambiguous indication of the recurring digits). Do not accept rounded or truncated decimals.

Qu.	Requirement	Mark	Additional guidance
30	Award TWO marks for a correct answer of 475,006 If the answer is incorrect, award ONE mark for the formal method of long multiplication with no more than ONE arithmetic error, e.g. $\begin{array}{r} 6419 \\ \times \quad 74 \\ \hline 25676 \\ 449330 \\ \hline 474006 \text{ (error)} \end{array}$ - OR $\begin{array}{r} 6419 \\ \times \quad 74 \\ \hline 25672 \text{ (error)} \\ 449330 \\ \hline 475002 \end{array}$	Up to 2m	Working must be carried through to reach a final answer for 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. $\begin{array}{r} 6419 \\ \times \quad 74 \\ \hline 25676 \\ 44933 \text{ (place value error)} \\ \hline 70609 \end{array}$
31	25	1m	
32	351	1m	Do not accept 351%
33	40	1m	Do not accept $\frac{120}{3}$

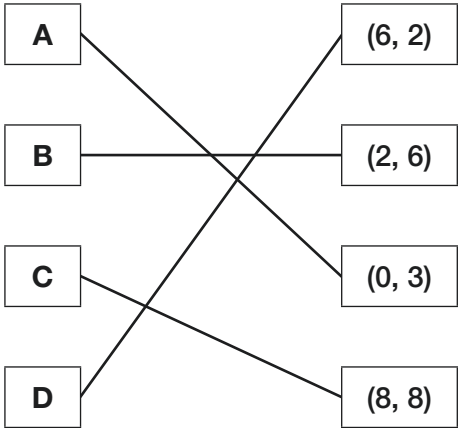
Key stage 2 mathematics test mark schemes

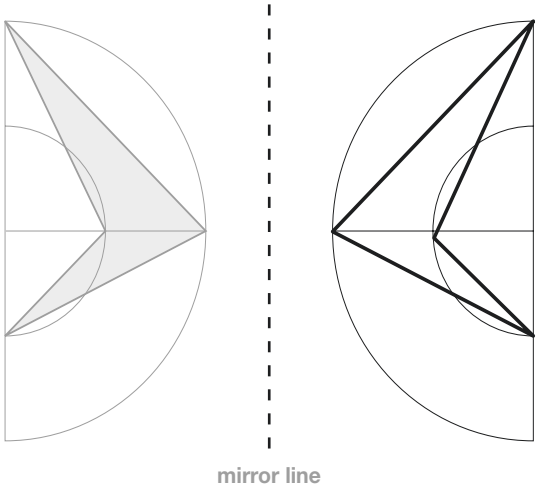
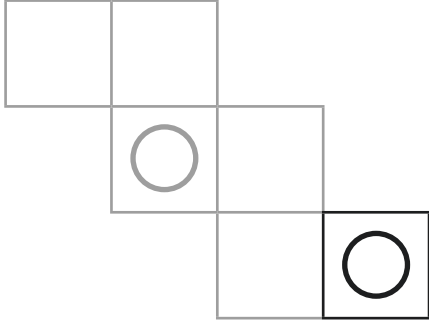
Qu.	Requirement	Mark	Additional guidance
34	Award TWO marks for a correct answer of 182 If the answer is incorrect, award ONE mark for the formal methods of division with no more than ONE arithmetic error, e.g. - long division algorithm, e.g. $ \begin{array}{r} 181 \text{ r}10 \\ 45 \overline{) 8190} \\ \underline{- 4500} \\ 3690 \\ \underline{- 3600} \\ 90 \\ \underline{ 80} \text{ (error)} \\ 10 \end{array} $ OR $ \begin{array}{r} 183 \text{ (error)} \\ 45 \overline{) 8190} \\ \underline{- 4500} \\ 3690 \\ \underline{- 3600} \\ 90 \\ 90 \end{array} \begin{array}{l} 100 \times 45 \\ 80 \times 45 \\ 2 \times 45 \end{array} $ - short division algorithm, e.g. $ \begin{array}{r} 1 \ 83 \text{ (error)} \\ 45 \overline{) 81^{36}9^0} \end{array} $	Up to 2m	Working must be carried through to reach a final answer for the award of ONE mark. 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.
35	90	1m	Do not accept $\frac{720}{8}$
36	$3 \frac{11}{42}$ OR $\frac{137}{42}$	1m	Accept equivalent fractions or the exact decimal equivalent, e.g. $3.2\dot{6}1904\dot{7}$ (accept any unambiguous indication of the recurring digits). Do not accept rounded or truncated decimals.

8. Mark schemes for Paper 2: reasoning

Qu.	Requirement	Mark	Additional guidance
1	Award ONE mark for the correct angle circled, as shown: 	1m	Accept alternative unambiguous positive indication of the correct answer.
2a	Award ONE mark for 5,250 written in the box, as shown: 	1m	
2b	Award ONE mark for 8,550 written in the box, as shown: 	1m	

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Qu.	Requirement	Mark	Additional guidance
3	80(p) OR (£)0.80	1m	Refer to section 6.1 on pages 14 and 15 for additional guidance on marking answers involving money.
4	Award ONE mark for all four labels matched correctly, as shown: 	1m	Lines need not touch the labels or coordinates, provided the intention is clear. Do not accept any label matched to more than one coordinate.
5	Award ONE mark for two boxes ticked correctly, as shown: 24 ☒ 42 ☐ 78 ☐ 112 ☒	1m	Accept alternative unambiguous positive indication of the correct answer.
6a	6	1m	
6b	5,641,728	1m	
7a	11 (pounds)	1m	Accept for ONE mark an answer in the range 10.9 – 11.1 inclusive.
7b	3 (kg)	1m	

Qu.	Requirement	Mark	Additional guidance
8	Diagram completed correctly, as shown:  mirror line	1m	Accept slight inaccuracies in drawing, provided the intention is clear. Diagram need not be shaded. See page 13 for guidance.
9a	11	1m	
9b	3	1m	Do not accept 8r3
10	Award ONE mark for the circle drawn on the net correctly, as shown: 	1m	Accept any unambiguous drawing of the circle, provided the intention is clear.
11	Award TWO marks for the correct answer of 234 If the answer is incorrect, award ONE mark for evidence of an appropriate method, e.g. • $331 + 295 = 626$ $860 - 626$ OR • $860 - 331 = 531$ (error) $531 - 295 = 236$	Up to 2m	Answer need not be obtained for the award of ONE mark. Misreads are not allowed.

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Qu.	Requirement	Mark	Additional guidance
12	Award ONE mark for an explanation that demonstrates that 600mm is not longer than 1 metre by using the same units, e.g. - Amina is not correct because 1m is 1,000mm - She is not correct because 600mm is 60cm and 1 metre is 100 cm 1000 mm = 1 metre and 600 mm is 0.6m OR An explanation that compares the difference between 600mm and 1m using correct conversions, e.g. - If you convert 1m into mm, it is 1,000 1,000 is bigger than 600 600mm is 400mm less than 1m	1m	Do not accept responses that restate the question. 1 metre is longer than 600 mm. Do not accept vague or incomplete explanations, e.g. 600mm < 1 metre - There are 10mm in a cm and 1 metre is 100cm Do not accept explanations which include incorrect mathematics or incorrect information that is relevant to the explanation, e.g. 1m = 1,000 ml (incorrect units) 1000 mls (incorrect units) is 1m
13	Award TWO marks for two boxes ticked correctly, as shown: 28 + 28 + 28 + 28 ☒ (20 × 4) + (8 × 4) ☒ (4 × 20) + 8 ☐ (4 × 30) – (4 × 2) ☒ (40 × 30) – 2 ☐ If the answer is incorrect, award ONE mark for: - two boxes ticked correctly and one incorrect box ticked OR - one box ticked correctly and no incorrect boxes ticked.	Up to 2m	Accept alternative positive indication of the correct answer.

Qu.	Requirement	Mark	Additional guidance
14	Award TWO marks for the correct answer of 45.8 If the answer is incorrect, award ONE mark for evidence of an appropriate method, e.g. $4.3 \times 8 = 34.4$ $2.6 \times 2 = 5.2$ $3.1 \times 2 = 6.2$ $34.4 + 5.2 + 6.2$ OR Award ONE mark for sight of any one of these combinations: 21.5 AND 12.9 AND 5.2 AND 6.2 21.5 AND 12.9 AND 5.7×2 21.5 AND 12.9 AND 11.4 34.4 AND 5.2 AND 6.2 34.4 AND 5.7×2 34.4 AND 11.4 8.6×3 AND 10×2 25.8 AND 20	Up to 2m	Answer need not be obtained for the award of ONE mark.
15	45	1m	
16	Award TWO marks for the correct answer of 0.15 If the answer is incorrect, award ONE mark for evidence of an appropriate method, e.g. $1\frac{1}{4} = 1.25$ $1.4 - 1.25 = 0.25$ (error) OR $1\frac{1}{4} \times 1000 = 1250$ $1400 - 1250 = 50$ (error) $50 \div 1000$	Up to 2m	Accept for TWO marks an exact equivalent fraction, e.g. $\frac{3}{20}$ For the award of TWO marks, the answer must be in kilograms. Answer need not be obtained for the award of ONE mark. Award ONE mark for an answer of 150 Any conversion of units, fractions or decimals must be a correct method of conversion seen OR a correct conversion for the award of ONE mark. Misreads are not allowed.

Key stage 2 mathematics test mark schemes

Qu.	Requirement	Mark	Additional guidance										
17	75(p) OR (£)0.75	1m	Refer to section 6.1 on pages 14 and 15 for additional guidance on marking answers involving money.										
18	Award TWO marks for three boxes ticked correctly, as shown: <table><tr><td>$\frac{5}{6}$</td><td>☒</td></tr><tr><td>$\frac{4}{9}$</td><td>☐</td></tr><tr><td>$\frac{9}{12}$</td><td>☒</td></tr><tr><td>$\frac{11}{15}$</td><td>☒</td></tr><tr><td>$\frac{10}{21}$</td><td>☐</td></tr></table> If the answer is incorrect, award ONE mark for: - three boxes ticked correctly and one incorrect box ticked OR - two boxes ticked correctly and no incorrect boxes ticked.	$\frac{5}{6}$	☒	$\frac{4}{9}$	☐	$\frac{9}{12}$	☒	$\frac{11}{15}$	☒	$\frac{10}{21}$	☐	Up to 2m	Accept alternative unambiguous positive indication of the correct answer.
$\frac{5}{6}$	☒												
$\frac{4}{9}$	☐												
$\frac{9}{12}$	☒												
$\frac{11}{15}$	☒												
$\frac{10}{21}$	☐												

Qu.	Requirement	Mark	Additional guidance
19	Award TWO marks for the correct answer of (£)22 If the answer is incorrect, award ONE mark for evidence of an appropriate method, e.g. • $780 \div 12 = 65$ $27 + 16 = 43$ $65 - 43$ OR • $27 + 16 = 43$ $43 \times 12 = 516$ $780 - 516 = 264$ $264 \div 12$ OR • $780 \div 12 = 64.666$ (error) $27 + 16 = 43$ $64.666 - 43 = (\text{£})21.666$ $\text{£}21.67$	Up to 2m	Answer need not be obtained for the award of ONE mark. Within an appropriate method, any rounding or truncating of the answer to their division does not negate an appropriate method, e.g. • $780 \div 12 = 67 \text{ r}8$ (error) $27 + 16 = 43$ $67 \text{ r}8$ rounded to 68 $68 - 43$ Any appropriate rounding or truncating of the final answer does not negate an appropriate method. Any answer within an appropriate method or a final answer which does not result from appropriate rounding or truncating implies an additional step not shown.
20	Award TWO marks for all three correct pairs of prime numbers that total 24, e.g. 5 and 19 7 and 17 11 and 13 If the answer is incorrect, award ONE mark for two rows completed correctly.	Up to 2m	Accept the correct pairs of prime numbers given in any order, e.g. • 5 and 19 OR 19 and 5 Do not accept 1 and 23

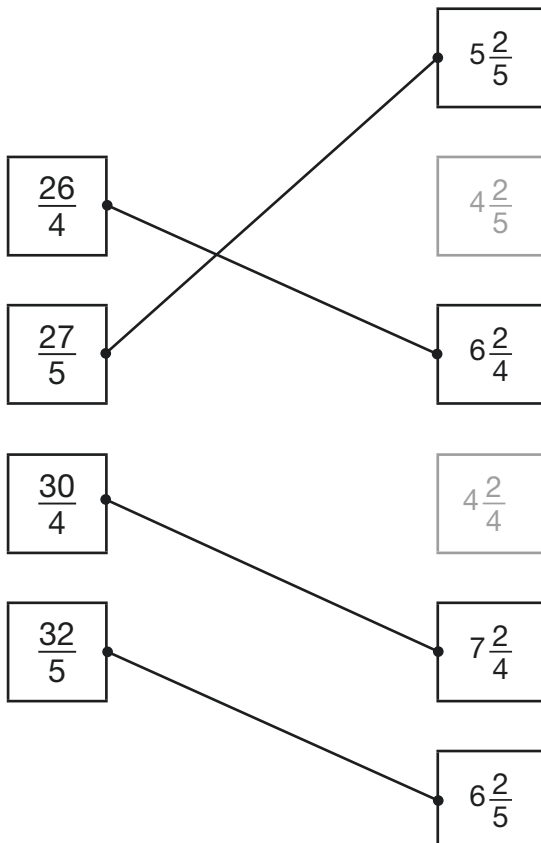
Key stage 2 mathematics test mark schemes

Qu.	Requirement	Mark	Additional guidance
21	Award TWO marks for the correct answer of 291 If the answer is incorrect, award ONE mark for evidence of an appropriate method, e.g. $3.56 \times 100 = 356$ $6.5 \times 10 = 65$ $356 - 65$ OR $3.56 \times 100 = 3560$ (<i>error</i>) $6.5 \times 10 = 65$ $3560 - 65$ Award ONE mark for sight of 356 AND 65	Up to 2m	Answer need not be obtained for the award of ONE mark. Misreads are not allowed.
22	36	1m	
23	8	1m	

9. Mark schemes for Paper 3: reasoning

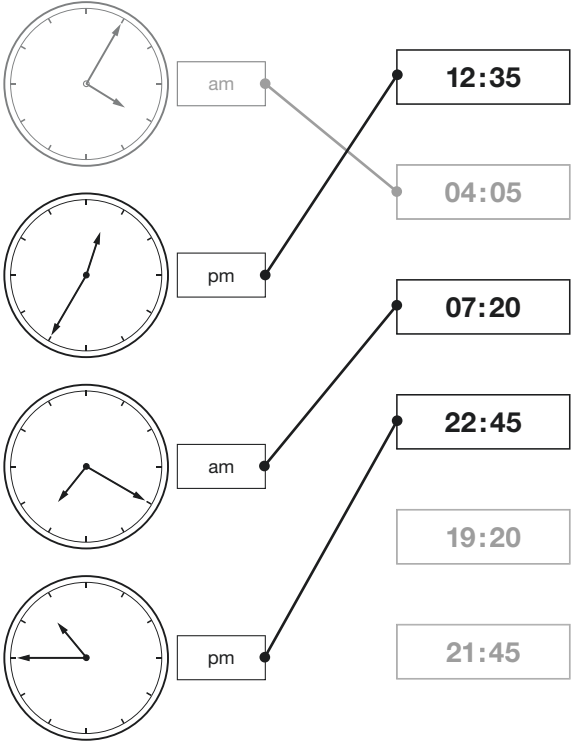
Qu.	Requirement	Mark	Additional guidance
1	Award ONE mark for all three correct numbers circled, as shown: 84,623 28,436 683,052 8,325 608,231	1m	Accept alternative unambiguous positive indication of the correct answer.
2	Award ONE mark for two boxes ticked correctly, as shown: 1,400,000 ☐ 1,049,900 ☒ 1,060,000 ☐ 1,030,900 ☒	1m	Accept alternative unambiguous positive indication of the correct answer.
3	16,000	1m	
4	(£) 1.64	1m	Refer to section 6.1 on pages 14 and 15 for additional guidance on marking answers involving money.
5	(7 , 2)	1m	
6	Award TWO marks for the correct answer of 2,450 If the answer is incorrect, award ONE mark for evidence of an appropriate method, e.g. $8 \times 25 = 200$ $2250 + 200$	Up to 2m	Answer need not be obtained for the award of ONE mark.

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Qu.	Requirement	Mark	Additional guidance
7	Award TWO marks for all four improper fractions matched to the correct mixed number, as shown:  Award ONE mark for any three improper fractions and mixed numbers matched correctly.	Up to 2m	Lines need not touch the boxes, provided the intention is clear. Do not accept any improper fraction that has been matched to more than one mixed number.
8	Award TWO marks for the correct answer of (£)15.55 If the answer is incorrect, award ONE mark for evidence of an appropriate method, e.g. £0.80 + £2.50 = £3.30 £3.30 + £1.15 = £4.45 £20 – £4.45 OR 80p + £2.50 + £1.15 = £4.35 (<i>error</i>) £20 – £4.35	Up to 2m	Answer need not be obtained for the award of ONE mark. Accept for ONE mark an answer of £1555, £1555p, £15,55 as evidence of an appropriate method. Refer to section 6.1 on pages 14 and 15 for additional guidance on marking answers involving money.
9a	-6	1m	Do not accept 6-
9b	-9	1m	Do not accept 9-

Qu.	Requirement	Mark	Additional guidance
10	Award TWO marks for two boxes ticked correctly, as shown: The elephant is exactly three times heavier than the rhino. ☐ The hippo is a quarter of the height of the giraffe. ☒ The rhino is 20cm taller than the hippo. ☒ The tallest animal is also the heaviest. ☐ Award ONE mark for: - two boxes ticked correctly and one incorrect box ticked OR - one box ticked correctly and no incorrect boxes ticked.	Up to 2m	Accept alternative unambiguous positive indication of the correct answer.
11	Award ONE mark for the correct box ticked, as shown: $0.304 = \frac{4}{10} + \frac{3}{1000}$ ☐ $0.43 = \frac{43}{1000}$ ☐ $0.403 = \frac{4}{10} + \frac{3}{1000}$ ☒ $0.034 = \frac{3}{10} + \frac{4}{1000}$ ☐	1m	Accept alternative unambiguous positive indication of the correct answer.

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Qu.	Requirement	Mark	Additional guidance
12	Award ONE mark for all three analogue times matched to the correct digital times, as shown: 	1m	Lines need not touch the boxes, provided the intention is clear. Do not accept any clock that has been matched to more than one digital time.
13	Award ONE mark for the correct order, as shown: 0.009 $\frac{9}{100}$ $\frac{99}{100}$ 0.999 least	1m	Misreads and miscopies are not allowed. Accept equivalent fractions and exact equivalent decimals. Accept numbers in reverse order AND the label 'least' changed to follow suit.
14a	Award ONE mark for the correct value ticked, as shown: $y = 8$ $y = 9$ ✓ $y = 10$	1m	Accept alternative unambiguous positive indications of the correct answer, e.g. numbers circled or underlined.
14b	Award ONE mark for the correct value ticked, as shown: $y = 5$ ✓ $y = 6$ $y = 7$	1m	Accept alternative unambiguous positive indications of the correct answer, e.g. numbers circled or underlined.

Qu.	Requirement	Mark	Additional guidance
15a	12,500	1m	
15b	75	1m	
16	Award ONE mark for an explanation that shows Tin A has more chocolate biscuits than Tin B, e.g. • Tin A has 12 chocolate. Tin B has 10 chocolate • Tin A has 2 more chocolate biscuits than Tin B • The pie chart shows that half of Tin B has chocolate and that's 10. One third of Tin A has chocolate and that is 12 • Tin A is $36 \div 3 = 12$ and Tin B is $20 \div 2 = 10$	1m	Do not accept responses that restate the question. Do not accept vague or incomplete explanations, e.g. • A has more of a chance because A is out of a higher number • There are more biscuits in Tin A than Tin B and the sizes of the pie charts show this and the area for chocolate is smaller in Tin B than Tin A Do not accept explanations which include incorrect mathematics or incorrect information relevant to the explanation, e.g. • Because chocolate in Tin B is half but in A it's more than half • $36 \div 3$ is more than $20 \div 2$

Qu.	Requirement	Mark	Additional guidance
17	Award THREE marks for the correct answer of 30 If the answer is incorrect, award TWO marks for: - evidence of an appropriate complete method which contains no more than one arithmetic error, e.g. $48 \times 35 = 1580 \text{ (error)}$ $1580 \div 56 = 28 \text{ r}12$ Award ONE mark for: - evidence of an appropriate method with more than one error OR - sight of 1680 (as evidence of the appropriate multiplication step completed correctly).	Up to 3m	Any appropriate rounding or truncating of the answer does not negate an appropriate method. Any answer which does not result from appropriate rounding or truncating implies an additional step not shown. Any incorrect answer to the pupil's division that is not appropriate rounding or truncating is an error. Answer need not be obtained for the award of ONE mark. If a pupil's final answer results in a notation error, this is taken as an additional error and only ONE mark can be awarded in an appropriate, complete method. 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. TWO marks will be awarded for an appropriate method with the misread number followed through correctly. ONE mark will be awarded for evidence of an appropriate method using the misread number followed through correctly with no more than one error.
18a	5,650	1m	Refer to section 6.3 on page 16 for additional guidance on marking answers involving measures.
18b	0.355	1m	

Qu.	Requirement	Mark	Additional guidance
19	Award TWO marks for the correct answer of 13.2 If the answer is incorrect, award ONE mark for evidence of an appropriate method, e.g. $22 \div 5 = 4.4$ 4.4×3 OR $22 \div 5 = 4.5$ (<i>error</i>) $4.5 \times 2 = 9$ $22 - 9 = 13$	Up to 2m	Accept for TWO marks an exact mixed number equivalent, e.g. $13\frac{1}{5}$ Answer need not be obtained for the award of ONE mark. Any appropriate rounding or truncating of the answer does not negate an appropriate method. Any answer which does not result from appropriate rounding or truncating implies an additional step not shown. If an answer has been rounded or truncated, it will only be considered if the appropriate step is shown or the non-integer answer is seen.
20	$\frac{1}{16}$	1m	Accept equivalent fractions.
21	Award TWO marks for all three correct numbers written in any order: 28, 84, 98 If the answer is incorrect award ONE mark for: - three correct numbers and one additional, incorrect number OR - two correct numbers and no additional, incorrect numbers.	Up to 2m	

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Qu.	Requirement	Mark	Additional guidance
22	Award TWO marks for the correct answer of 50° If the answer is incorrect, award ONE mark for evidence of an appropriate method, e.g. $115 \times 2 = 230$ $360 - 230 = 130$ $130 \div 2 = 65^\circ$ $65^\circ + 65^\circ = 130^\circ$ $180^\circ - 130^\circ$ OR $115 \times 2 = 230$ $360 - 230 = 130$ $130 \times 2 = 260^\circ$ $360^\circ - 260^\circ = 100^\circ$ $100^\circ \div 2$ Award ONE mark for sight of: 130 OR 65	Up to 2m	Answer need not be obtained for the award of ONE mark.

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Standards
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Key stage 2 mathematics test mark schemes

Paper 1: arithmetic, Paper 2: reasoning and Paper 3: reasoning

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