

**Ma**

KEY STAGE

**2**

LEVELS

**3-5**

Mathematics tests

## Mathematics mark schemes

Test A, Test B and  
mental mathematics

**2013**

National Curriculum assessments

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# Introduction

The Standards and Testing Agency (STA) is responsible for the development and delivery of statutory tests and assessments in 2013. STA is an executive agency of the Department for Education. The test papers will be marked by markers employed by the external marking agency under contract to STA. The markers will follow the mark schemes in this booklet, which is supplied to teachers for information.

This booklet contains the mark schemes for the levels 3–5 tests A, B and mental mathematics. Level threshold tables will be available at [www.education.gov.uk/KS2](http://www.education.gov.uk/KS2) by Tuesday 9 July 2013.

Test A carries a total of 40 marks. Test B also carries a total of 40 marks.

The mental mathematics test carries a total of 20 marks.

The mark schemes were written alongside the questions, but many examples used in the mark schemes were taken from trialling scripts. The mark schemes indicate the criteria on which judgements should be made. In areas of uncertainty however, markers should use professional judgement based on the training they have received.

The 2013 Key Stage 2 mathematics tests and mark schemes were produced by the Key Stage 2 mathematics test development team at the STA.

## General guidance

The marking information for each question is set out in the form of tables, which start on page 8 of this booklet.

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

The '**Mark**' column indicates the total number of marks available for each question part. On some occasions the symbol (U1) may be shown in the 'Mark' column. The 'U' indicates that there is a Using and applying mathematics element in the question. The number, 1, shows the number of marks attributed to Using and applying mathematics in this question.

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 correct working
- examples of some different types of correct response.

The '**Additional guidance**' column indicates alternative acceptable responses, and provides details of specific types of response which are unacceptable. Other guidance, such as the range of acceptable answers, is provided as necessary.

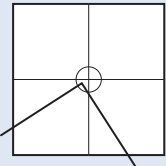
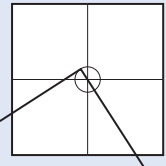
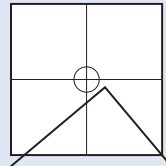
Additionally, for the mental mathematics test, general guidance on marking is given on page 20, followed by the marking information for each question.

### Applying the mark schemes

In order to ensure consistency of marking, the most frequent procedural queries are listed on pages 4 and 5 along with the action the marker will take. This is followed by further guidance on pages 6 and 7 relating to the marking of questions that involve money, time and other measures. Unless otherwise specified in the mark scheme, markers will apply the following guidelines in all cases.

## 4 2013 Key Stage 2 levels 3–5 mathematics tests mark schemes

What if...	Marking procedure	
<p>The child's response is numerically or algebraically equivalent to the answer in the mark scheme.</p>	<p>Markers will award the mark unless the mark scheme states otherwise.</p>	
<p>The child's response does not match closely any of the examples given.</p>	<p>Markers will use their judgement in deciding whether the response corresponds with the statement of the requirements given in the 'Requirement' column. Reference will also be made to the 'Additional guidance' column and, if there is still uncertainty, markers will contact the supervising marker.</p>	
<p>The child has responded in a non-standard way.</p>	<p>Calculations, formulae and written responses do not have to be set out in any particular format. Children may provide evidence in any form as long as its meaning can be understood. Diagrams, symbols or words are acceptable for explanations or for indicating a response. Any correct method of setting out working, however idiosyncratic, will be accepted.</p>	
<p>There appears to be a misreading affecting the working.</p>	<p>This is when the child misreads the information given in the question and uses different information without altering the original intention or difficulty level of the question. For each misread that occurs, one mark only will be deducted. In one-mark questions – 0 marks are awarded. In two-mark questions that have a method mark – 1 mark will be awarded if the correct method is correctly implemented with the misread number.</p>	
<p>No answer is given in the expected place, but the correct answer is given elsewhere.</p>	<p>Where a child has shown understanding of the question, the mark(s) will be given. In particular, where a word or number response is expected, a child may meet the requirement by annotating a graph or labelling a diagram elsewhere in the question.</p>	
<p>The child's answer is correct but the wrong working is shown.</p>	<p>A correct response will always be marked as correct.</p>	
<p>The response in the answer box is wrong, but the correct answer is shown in the working.</p>	<p>Where appropriate, detailed guidance will be given in the mark scheme, which markers will follow. If no guidance is given, markers will examine each case to decide whether:</p> <ul style="list-style-type: none"> <li>■ the incorrect answer is due to a transcription error</li> <li>■ the child has continued to give redundant extra working which does not contradict work already done</li> <li>■ the child has continued to give redundant extra working which does contradict work already done.</li> </ul>	<p>If so, the mark <b>will</b> be awarded.</p> <p>If so, the mark <b>will</b> be awarded.</p> <p>If so, the mark <b>will not</b> be awarded.</p>

What if...	Marking procedure
<b>The correct response has been crossed out and not replaced.</b>	Any legible crossed-out work that has not been replaced will be marked according to the mark scheme. If the work is replaced, then crossed-out work will not be considered.
<b>More than one answer is given.</b>	If all answers are correct (or a range of answers is given, all of which are correct), the mark will be awarded unless prohibited by the mark scheme. If both correct and incorrect responses are given, no mark will be awarded.
<b>The answer is correct but, in a later part of the question, the pupil has contradicted this response.</b>	A mark given for one part will not be disallowed for working or answers given in a different part, unless the mark scheme specifically states otherwise.
<b>The child has drawn lines which do not meet at the correct point.</b>	<p>Markers will interpret the phrase 'slight inaccuracies in drawing' to mean '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-end;"> <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 <b>not</b> accepted</p> </div> </div>

### Recording marks awarded on the test paper

In the margin there is a marking space alongside each question part.

For the mental mathematics test, the external marker will record '1' for a correct response or '0' otherwise.

For the written tests, the external marker will record one of the following in each marking space:

'1' for a correct response

'0' for an incorrect response

'-' if no response is made.

A two-mark question which is correct will have '1' entered in both marking spaces. A two-mark question which is incorrect, but which has sufficient evidence of working or method as required by the mark scheme, will have '1' entered in the first marking space and '0' in the second. Otherwise '0' will be entered in both marking spaces, unless no response is made, in which case '-' will be entered in both marking spaces.

For the written tests, the total number of marks gained on each double page will be written in the space at the bottom of the right-hand page. For all of the tests, the total number of marks gained on each paper will be recorded on the front of the test paper.

## Marking specific types of question – summary of additional guidance

### Responses involving money

	Accept	Do not accept
<p><b>Where the £ sign is given</b></p> <p>for example: £3.20, £7</p> <div style="border: 1px solid black; padding: 5px; width: fit-content;">£</div>	<p>£3.20                      £7</p> <p>                                    £7.00</p> <p>Any unambiguous indication of the correct amount, eg:</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, eg:</p> <p>£320</p> <p>£320p</p> <p>Incorrect placement of decimal point, or incorrect use or omission of 0, eg:</p> <p>£3.2</p> <p>£3 200</p> <p>£32 0</p> <p>£3-2-0</p>
<p><b>Where the p sign is given</b></p> <p>for example: 40p</p> <div style="border: 1px solid black; padding: 5px; width: fit-content;">p</div>	<p>40p</p> <p>Any unambiguous indication of the correct amount, eg</p> <p>£0.40p</p>	<p>Incorrect or ambiguous use of pounds or pence, eg:</p> <p>0.40p</p> <p>£40p</p>
<p><b>Where no sign is given</b></p> <p>for example: £3.20, 40p</p> <div style="border: 1px solid black; padding: 5px; width: fit-content;"></div>	<p>£3.20                      40p</p> <p>320p                      £0.40</p> <p>Any unambiguous indication of the correct amount, eg:</p> <p>£3.20p                      £0.40p</p> <p>£3 20 pence                      £.40p</p> <p>£3 20                      £.40</p> <p>£3,20                      40</p> <p>£3-20                      0.40</p> <p>£3:20</p> <p>3.20</p> <p>320</p> <p>3 pounds 20</p>	<p>Incorrect or ambiguous use of pounds or pence, eg:</p> <p>£320                      £40</p> <p>£320p                      £40p</p> <p>£3.2                      0.4</p> <p>3.20p                      0.40p</p>

## Responses involving time

	Accept	Do not accept
<b>A time interval</b> for example: 2 hours 30 minutes	2 hours 30 minutes Any unambiguous, correct indication, eg: $2\frac{1}{2}$ hours 2.5 hours 2h 30 2h 30 min 2 30 150 minutes 150 Digital electronic time, ie 2:30	Incorrect or ambiguous time interval, eg: 2.30 2-30 2,30 230 2.3 2.3 hours 2.3h 2h 3 2.30 min
<b>A specific time</b> for example: 8:40am, 17:20	8:40am 8:40 twenty to nine Any unambiguous, correct indication, eg: 08.40 8.40 0840 8 40 8-40 8,40 Unambiguous change to 12- or 24-hour clock, eg: 17:20 as 5:20pm or 17:20pm	Incorrect time, eg: 8.4am 8.40pm Incorrect placement of separators, spaces, etc or incorrect use or omission of 0, eg: 840 8:4:0 8.4 084

## Responses involving measures

	Accept	Do not accept
<b>Where units are given (eg: kg, m, l)</b> for example: 8.6kg <div style="border: 1px solid black; display: inline-block; padding: 2px 10px; margin-top: 5px;">kg</div>	8.6kg Any unambiguous indication of the correct measurement, eg: 8.60kg 8.6000kg 8kg 600g	Incorrect or ambiguous use of units, eg 8600kg

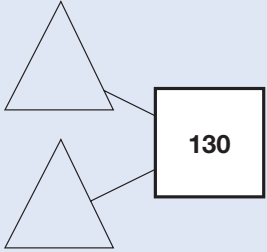
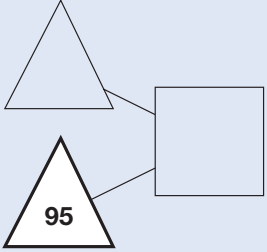
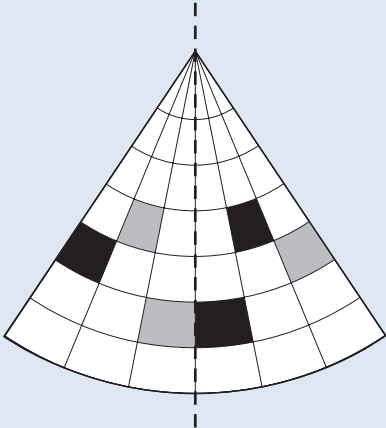
**Note**

If a child leaves the answer box empty but writes the answer elsewhere on the page, then that answer must be consistent with the units given in the answer box and the conditions listed above.

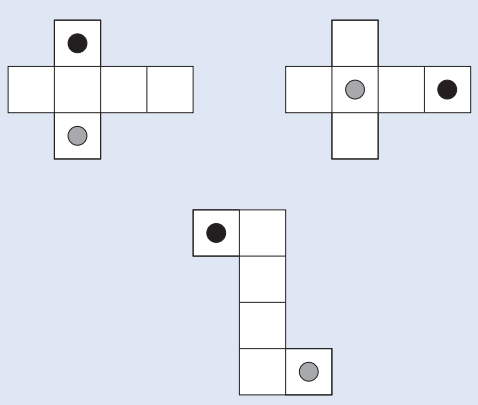
If a child changes the unit given in the answer box, then their answer must be equivalent to the correct answer using the unit they have chosen, unless otherwise indicated in the mark scheme.

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**Test A: Calculator not allowed**

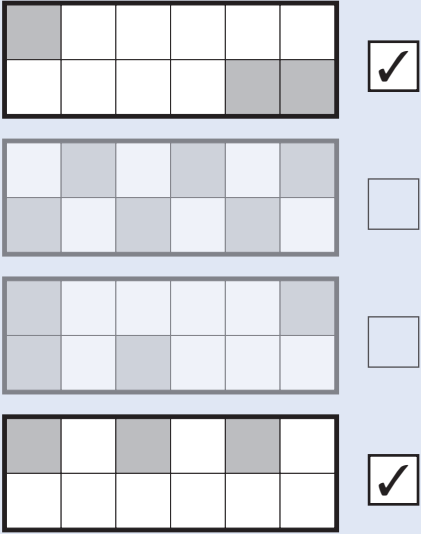
Question	Requirement	Mark	Additional guidance																																				
1a		1m																																					
1b		1m																																					
2	<p>Diagram completed as shown:</p> 	1m	<p>Accept inaccurate shading, provided the intention is clear.</p> <p>Accept alternative unambiguous indications.</p>																																				
3	<p>Number circled as shown:</p> <p>338   3030   <b>288</b>   313   130</p>	1m	<p>Accept alternative unambiguous indications.</p>																																				
4	<p>Grid completed as shown:</p> <table border="1" data-bbox="277 1664 564 1944"> <tr> <td>x</td> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> </tr> <tr> <td>1</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>2</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>3</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>4</td> <td></td> <td></td> <td></td> <td></td> <td>✓</td> </tr> <tr> <td>5</td> <td></td> <td></td> <td></td> <td>✓</td> <td></td> </tr> </table>	x	1	2	3	4	5	1						2						3						4					✓	5				✓		1m	<p>Accept alternative unambiguous indications, eg 20 written only in the correct squares.</p>
x	1	2	3	4	5																																		
1																																							
2																																							
3																																							
4					✓																																		
5				✓																																			



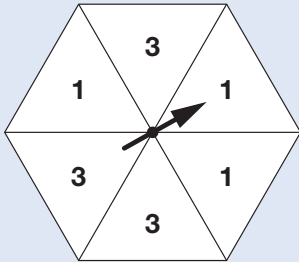
Question	Requirement	Mark	Additional guidance
5	<p>Award <b>TWO</b> marks for three diagrams completed as shown:</p>  <p>If the answer is incorrect, award <b>ONE</b> mark for two diagrams correct.</p>	<p><b>Up to 2m</b></p> <p>U1</p>	Accept alternative unambiguous indications.
6a	4	1m	
6b	Gives an answer in the range $4\frac{1}{2}$ km to $5\frac{1}{2}$ km exclusive.	1m	<b>Do not</b> accept $4\frac{1}{2}$ <b>OR</b> $5\frac{1}{2}$
6c	D	1m	
7	<p>Award <b>TWO</b> marks for a correct answer of £47</p> <p>If the answer is incorrect, award <b>ONE</b> mark for evidence of appropriate working, eg</p> $£39 + £55 = £94$ $£94 \div 2 = \text{wrong answer}$	<b>Up to 2m</b>	Working must be carried through to reach an answer for the award of <b>ONE</b> mark.
8	£18.85	1m	
9	<p>Award <b>ONE</b> mark for three boxes ticked or crossed correctly as shown:</p> <p>£1.03 can be made with exactly 1 coin. <input type="checkbox"/></p> <p>£1.03 can be made with exactly 2 coins. <input checked="" type="checkbox"/></p> <p>£1.03 can be made with exactly 3 coins. <input checked="" type="checkbox"/></p> <p>£1.03 can be made with exactly 4 coins. <input checked="" type="checkbox"/></p>	1m	Accept alternative unambiguous indications.

## Test A: Calculator **not** allowed

Question	Requirement	Mark	Additional guidance										
10	<p>Award <b>TWO</b> marks for the correct answer of A <b>AND</b> B</p> <p>If the answer is incorrect, award <b>ONE</b> mark for:</p> <ul style="list-style-type: none"> <li>■ A only</li> </ul> <p><b>OR</b></p> <ul style="list-style-type: none"> <li>■ B only</li> </ul> <p><b>OR</b></p> <ul style="list-style-type: none"> <li>■ A <b>AND</b> B <b>AND</b> not more than one incorrect letter.</li> </ul>	<b>Up to 2m</b>	Accept alternative unambiguous indication.										
11	<p>Award <b>TWO</b> marks for all values correct as shown:</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Number</th> <th>Rounded to the nearest <b>whole</b> number</th> </tr> </thead> <tbody> <tr> <td>5.05</td> <td style="text-align: center;"><b>5</b></td> </tr> <tr> <td>5.55</td> <td style="text-align: center;"><b>6</b></td> </tr> <tr> <td>4.45</td> <td style="text-align: center;"><b>4</b></td> </tr> <tr> <td>4.54</td> <td style="text-align: center;"><b>5</b></td> </tr> </tbody> </table> <p>If the answer is incorrect, award <b>ONE</b> mark for three numbers correctly rounded.</p>	Number	Rounded to the nearest <b>whole</b> number	5.05	<b>5</b>	5.55	<b>6</b>	4.45	<b>4</b>	4.54	<b>5</b>	<b>Up to 2m</b>	
Number	Rounded to the nearest <b>whole</b> number												
5.05	<b>5</b>												
5.55	<b>6</b>												
4.45	<b>4</b>												
4.54	<b>5</b>												
12	<p>Award <b>TWO</b> marks for all four values correct as shown:</p> $15 \times 100 = \boxed{1500}$ $\boxed{150} \times 10 = 1500$ $\boxed{15000} \div 100 = 150$ $150 \div 10 = \boxed{15}$ <p>If the answer is incorrect, award <b>ONE</b> mark for three values correct.</p>	<b>Up to 2m</b>											
13	(2, 4)	<b>1m</b>											

Question	Requirement	Mark	Additional guidance
14	Diagram ticked correctly as shown: 	1m	Accept alternative unambiguous indications.
15	Megan, Chen, Alfie, Nina	1m <div style="border: 1px solid black; border-radius: 50%; width: 20px; height: 20px; display: flex; align-items: center; justify-content: center; margin: 0 auto;">U1</div>	Accept other unambiguous abbreviations or recognisable misspellings.
16	Award <b>TWO</b> marks for the correct answer of £3.85 If the answer is incorrect, award <b>ONE</b> mark for evidence of appropriate working, eg $\pounds 10 - \pounds 2.30 = \pounds 7.70$ $\pounds 7.70 \div 2 = \text{wrong answer}$	Up to 2m	Working must be carried through to reach an answer for the award of <b>ONE</b> mark.
17a	4km	1m	The answer is a specific time (see general guidance on page 7).
17b	4:15pm	1m	

Test A: Calculator **not** allowed

Question	Requirement	Mark	Additional guidance
18	<p>An arrangement where each section contains either 1 <b>OR</b> 3, eg</p> 	<p>1m</p> <p>U1</p>	<p>Numbers may be repeated any number of times, in any order.</p> <p>Accept negative odd numbers.</p> <p><b>Do not</b> accept answers that leave sections blank or use zero.</p>
19	<p>Award <b>TWO</b> marks for the correct answer of 34</p> <p>If the answer is incorrect, award <b>ONE</b> mark for evidence of appropriate working which contains no more than <b>ONE</b> arithmetical error, eg:</p> <ul style="list-style-type: none"> <li>■ repeated addition/subtraction methods, eg           <math display="block">\begin{array}{r} 816 \\ -240 \quad 10 \times 24 \\ \hline 576 \\ -240 \quad 10 \times 24 \\ \hline 336 \\ -240 \quad 10 \times 24 \\ \hline 96 \\ -48 \quad 2 \times 24 \\ \hline 48 \\ -48 \quad 2 \times 24 \\ \hline 0 \quad \text{wrong answer} \end{array}</math> </li> <li>■ factor/multiple methods, eg           <math display="block">816 \div 8 = 102</math> <math display="block">102 \div 3 = \text{wrong answer}</math> </li> <li>■ short division algorithm           <math display="block">\begin{array}{r} \text{wrong answer} \\ 24 \overline{) 81^9 6} \end{array}</math> </li> <li>■ long division algorithm           <math display="block">\begin{array}{r} \text{wrong answer} \\ 24 \overline{) 816} \\ \underline{-720} \\ 96 \\ \underline{-96} \\ 0 \end{array}</math> </li> <li>■ fraction method           <math display="block">\frac{816}{24} = \frac{408}{12} = \frac{204}{6} = \text{wrong answer}</math> </li> </ul>	<p>Up to 2m</p>	<p>In all cases accept follow-through of <b>ONE</b> error in working.</p> <p>Working must be carried through to reach an answer for the award of <b>ONE</b> mark.</p> <p>Variations on algorithms are acceptable, provided they represent a viable and complete method.</p> <p><b>Do not</b> award any marks if the final answer is missing.</p> <p><b>No mark</b> is awarded for repeated addition/subtraction the wrong number of times.</p> <p>Short division methods must be supported by evidence of appropriate carrying figures to indicate use of a division algorithm.</p>

Question	Requirement	Mark	Additional guidance
20	<p>Award <b>TWO</b> marks for the correct answer of 300</p> <p>If the answer is incorrect, award <b>ONE</b> mark for evidence of appropriate working, eg</p> <p><math>1\frac{1}{2}</math> kg = 1500g</p> <p>1.2 kg = 1200g</p> <p>1500g – 1200g = wrong answer</p>	Up to 2m	<p>Answer must be in grams for the award of <b>TWO</b> marks.</p> <p><b>Do not</b> accept 0.3kg.</p> <p>Working must be carried through to reach an answer for the award of <b>ONE</b> mark.</p>
21	<p>Award <b>TWO</b> marks for the correct answer of 160</p> <p>If the answer is incorrect, award <b>ONE</b> mark for evidence of appropriate working, eg:</p> <p>■ <math>64 \div 2 = 32</math></p> <p><math>64 + 64 + 32 =</math> wrong answer</p> <p><b>OR</b></p> <p>■ <math>64 \times 5 = 320</math></p> <p><math>320 \div 2 =</math> wrong answer</p>	<p>Up to 2m</p> <p>U1</p>	<p>Working must be carried through to reach an answer for the award of <b>ONE</b> mark.</p>
22	<p>Numbers in order, as shown:</p> <p>0.5    <math>\frac{3}{5}</math>    0.65    <math>\frac{2}{3}</math></p>	1m	<p>Accept equivalent decimals, percentages or fractions.</p>

Test A: Calculator **not** allowed

Question	Requirement	Mark	Additional guidance
23	<p>Award <b>TWO</b> marks for the correct answer of 54</p> <p>If the answer is incorrect, award <b>ONE</b> mark for evidence of appropriate working, eg</p> $8 \times 4 = 32$ $3 \times 4 = 12$ $5 \times 2 = 10$ $32 + 12 + 10 = \text{wrong answer}$	Up to 2m	Working must be carried through to reach an answer for the award of <b>ONE</b> mark.
24	<p>Award <b>TWO</b> marks for the correct answer of</p> <p>cake <span style="border: 1px solid black; padding: 2px;">40 p</span> <b>AND</b> biscuit <span style="border: 1px solid black; padding: 2px;">25 p</span></p> <p>If the answer is incorrect, award <b>ONE</b> mark for:</p> <ul style="list-style-type: none"> <li>■ answers reversed, ie: cake = 25p <b>AND</b> biscuit = 40p</li> </ul> <p><b>OR</b></p> <ul style="list-style-type: none"> <li>■ one of the two costs correct</li> </ul> <p><b>OR</b></p> <ul style="list-style-type: none"> <li>■ for evidence of appropriate working, eg cost of cake + biscuit + biscuit = 90p cake = biscuit + 15p <math>90p - 15p = 75p</math> <math>75p \div 3 + 15p = \text{wrong answer}</math></li> </ul>	<p>Up to 2m</p> <p style="text-align: center;">(U1)</p>	<p>Accept for <b>ONE</b> mark 0.40p <b>OR</b> £40 <b>AND</b> 0.25p <b>OR</b> £25 as evidence of appropriate working.</p> <p>Working must be carried through to reach an answer for the award of <b>ONE</b> mark.</p>
25	<p>An explanation which recognises that Chen is more likely than Megan to choose a 4, eg:</p> <ul style="list-style-type: none"> <li>■ 'Chen and Megan both have one 4, but Megan has more other numbers'</li> <li>■ 'Chen has 1 out of 4, but Megan only 1 out of 5'</li> <li>■ 'Megan has four counters that aren't 4 but Chen only has three'</li> <li>■ 'Megan has a 20% chance and Chen has a 25% chance'.</li> </ul>	<p>1m</p> <p style="text-align: center;">(U1)</p>	<p>No mark is awarded for circling 'Yes' alone.</p> <p><b>Do not</b> accept vague or incomplete explanations, eg:</p> <ul style="list-style-type: none"> <li>■ 'Megan has more counters'</li> <li>■ 'Megan can choose a 5 but Chen can't'</li> </ul> <p>If 'No' is circled but a correct, unambiguous explanation is given, then award the mark.</p>

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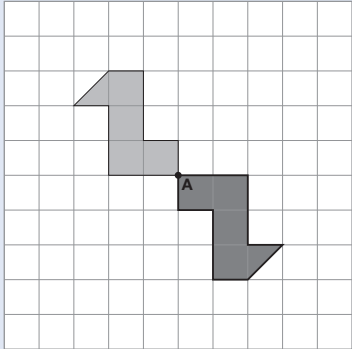
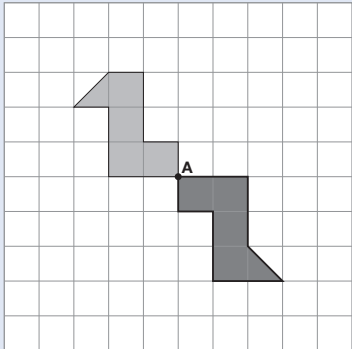
## Test B: Calculator allowed

Question	Requirement	Mark	Additional guidance
1	7.2	1m	
2	16	1m	
3	$\boxed{14} + \boxed{26} = 40$ <b>OR</b> $\boxed{16} + \boxed{24} = 40$	1m <b>U1</b>	Numbers may be given in either order.
4a	C	1m	Accept alternative unambiguous indications.
4b	E	1m	Accept alternative unambiguous indications.
5a	15	1m	
5b	130	1m	
6a	C and A <b>OR</b> C and D	1m	
6b	A line of 10.5cm	1m	Accept slight inaccuracies in drawing (see page 5 for guidance).
7	<p>Award <b>TWO</b> marks for the correct answer of 65p or £0.65</p> <p>If the answer is incorrect, award <b>ONE</b> mark for evidence of an appropriate method, eg</p> $12 \times 25p = £3.00$ $£3.00 - £2.35$	<b>Up to 2m</b>	<p>Accept for <b>ONE</b> mark £65 <b>OR</b> £65p <b>OR</b> 0.65p as evidence of an appropriate method.</p> <p>Answer need not be obtained for the award of <b>ONE</b> mark.</p>
8	$\boxed{187} \div 11 = 17$	1m	
9a	8 hours	1m	The answer is a time interval (see page 7 for guidance).
9b	1 hour 30 minutes	1m	The answer is a time interval (see page 7 for guidance).
10	11	1m	Accept 11cm <sup>2</sup>



Question	Requirement	Mark	Additional guidance
11a	3	1m	<b>Do not</b> accept a list of names.
11b	Chen	1m U1	Accept unambiguous abbreviations or recognisable misspellings. Accept 9
12	All three digits correct, as shown: $\begin{array}{ c c } \hline 4 & 6 \\ \hline \end{array} < \begin{array}{ c c } \hline 6 & 2 \\ \hline \end{array}$ $\begin{array}{ c c } \hline 5 & 6 \\ \hline \end{array} > \begin{array}{ c c } \hline 5 & 0 \\ \hline \end{array}$ $\begin{array}{ c c } \hline 7 & 6 \\ \hline \end{array} < \begin{array}{ c c } \hline 7 & 7 \\ \hline \end{array}$	1m	
13a	-7°C	1m	<b>Do not</b> accept 7-
13b	13°C	1m	If 13a is negative allow follow through in part b for <b>ONE</b> mark.
14	Diagram completed so that totals across and down are both 13 <b>OR</b> both 17, eg: $\begin{array}{ccc} \textcircled{5} & & \textcircled{5} \\ \textcircled{3} & \textcircled{1} & \textcircled{9} \text{ OR } \textcircled{1} & \textcircled{9} & \textcircled{7} \\ \textcircled{7} & & \textcircled{3} \end{array}$	1m U1	
15	Award <b>TWO</b> marks for the correct answer of 12  If the answer is incorrect, award <b>ONE</b> mark for evidence of an appropriate method, eg 6 litres = 6000ml 6000ml ÷ 500ml	Up to 2m	Answer need not be obtained for the award of <b>ONE</b> mark.
16	87.62	1m	
17	Award <b>TWO</b> marks for the correct answer of £1.55  If the answer is incorrect, award <b>ONE</b> mark for evidence of an appropriate method, eg £5.40 – £0.75 = £4.65 £4.65 ÷ 3	Up to 2m	Accept for <b>ONE</b> mark £155 <b>OR</b> £155p <b>OR</b> 1.55p as evidence of an appropriate method.  Answer need not be obtained for the award of <b>ONE</b> mark.

## Test B: Calculator allowed

Question	Requirement	Mark	Additional guidance
18	$\boxed{2} \boxed{9} \times \boxed{6} \boxed{9} = 2001$	<b>1m</b> (U1)	Numbers may be given in either order.
19	<p>Award <b>TWO</b> marks for the diagram completed as shown:</p>  <p>If the answer is incorrect, award <b>ONE</b> mark for</p> <ul style="list-style-type: none"> <li>the shape rotated 90° (in either direction)</li> </ul> <p><b>OR</b></p> <ul style="list-style-type: none"> <li>shape correctly rotated but with top left vertex not positioned at point A</li> </ul> <p><b>OR</b></p> 	<b>Up to 2m</b>	<p>Accept slight inaccuracies in drawing (see page 5 for guidance).</p> <p>Shape need not be shaded.</p>
20	9	<b>1m</b>	
21	<p>Award <b>TWO</b> marks for correct answer of 170°</p> <p>If the answer is incorrect, award <b>ONE</b> mark for evidence of an appropriate method, eg:</p> <ul style="list-style-type: none"> <li>50 + 50 + 90 = 190 360 – 190</li> </ul> <p><b>OR</b></p> <ul style="list-style-type: none"> <li>360 – 50 – 50 – 90</li> </ul>	<b>Up to 2m</b>	Answer need not be obtained for the award of <b>ONE</b> mark.

Question	Requirement	Mark	Additional guidance
22	Award <b>TWO</b> marks for the correct answer of 16  If the answer is incorrect, award <b>ONE</b> mark for evidence of an appropriate method, eg $45 \div 1.25 = 36$ $45 \div 2.25 = 20$ $36 - 20$	Up to 2m	Answer need not be obtained for the award of <b>ONE</b> mark.
23	49 <b>AND</b> 81  <b>OR</b> 121 <b>AND</b> 9	1m  U1	Numbers may be given in either order.
24	Award <b>TWO</b> marks for the correct answer of 378  If the answer is incorrect, award <b>ONE</b> mark for evidence of an appropriate method, eg: ■ 366 369 372 375 378 381 364 371 378 385  <b>OR</b> ■ Factorisation/calculator method, eg $7 \times 3 = 21$ $21 \times 18$	Up to 2m  U1	Answer need not be obtained for the award of <b>ONE</b> mark.
25a	An explanation that shows that one quarter of 240 is more than one half of 80, eg: ■ 'Because only 40 are walking to Foxwood and 60 are walking to Midtown' ■ 'Half of the people who walk is 40 and a quarter of the people who walk is 60'	1m  U1	No mark is awarded for circling 'No' alone.  <b>Do not</b> accept vague or incomplete explanations, eg: ■ 'Because at Foxwood it's a half and at Midtown it's a quarter' ■ 'Because there are 80 children at Foxwood and 240 children at Midtown'  If 'Yes' is circled but a correct unambiguous explanation is given then award the mark.
25b	Award <b>TWO</b> marks for the correct answer of 50  If the answer is incorrect, award <b>ONE</b> mark for evidence of an appropriate method, eg $240 \div 3 = 80$ $240 - 80 - 60 = 100$ $100 \div 2$	Up to 2m	Answer need not be obtained for the award of <b>ONE</b> mark.

# Mark scheme for the mental mathematics test

## Applying the mark scheme

Please note that children will not be penalised if they record any information given in the question or show their working. Markers will ignore any annotation, even if in the answer space, and mark only the answer. Markers will accept an unambiguous answer written in the stimulus box, or elsewhere on the page.

Full mark scheme information is given on page 22. In addition, a 'quick reference' mark scheme is provided on page 21. This is presented in a similar format to the children's answer sheet.

### General guidance

The general guidance for marking the written tests also applies to marking the mental mathematics test. In addition, the following principles apply.

1. Unless stated otherwise in the mark scheme, accept answers written in words, or a combination of words and figures.
2. Where units are specified, they are given on the answer sheet. Children are not penalised for writing in the units again.
3. Where answers are required to be ringed, do not accept if more than one answer is ringed, unless it is clear which is the child's intended answer. Accept also any other way of indicating the correct answer, eg underlining.

## 2013 mental mathematics

# Quick reference mark scheme

### Practice question

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### Time: 5 seconds

<b>1</b>	<b>7203</b>
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1
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<b>2</b>	<b>9</b>
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2
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<b>3</b>	£ <b>5.50</b>
----------	---------------

3
---

<b>4</b>	<b>11:45</b>
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4
---

<b>5</b>	<b>4</b> °C
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5
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### Time: 10 seconds

<b>6</b>	<b>1200</b>
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6
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<b>7</b>	<b>4</b>	Accept r4
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7
---

<b>8</b>	<b>154</b>
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8
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<b>9</b>	<b>0.8</b>
----------	------------

9
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<b>10</b>	30 ml <b>300 ml</b> 3 l 30 l 300 l
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10
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<b>11</b>	eg <b>320, 360, 400...</b>	Any multiple of 40 > 300
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11
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<b>12</b>	£ <b>1.80</b>
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12
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<b>13</b>	£ <b>37.50</b>
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13
----

<b>14</b>	<b>500</b>
-----------	------------

14
----

<b>15</b>	<b>60</b>	Do not accept 60%
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15
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### Time: 15 seconds

<b>16</b>	<b>12.5</b>
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16
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<b>17</b>	<b>45</b> °
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17
----

<b>18</b>	<b>70</b>
-----------	-----------

18
----

<b>19</b>	<b>605</b>
-----------	------------

19
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<b>20</b>	<b>14</b>
-----------	-----------

20
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## Mental mathematics: Questions 1–20

Question	Requirement	Mark	Additional guidance
1	7203	1m	
2	9	1m	
3	£5.50	1m	
4	11:45	1m	
5	4°C	1m	
6	1200	1m	
7	4	1m	Accept r4
8	154	1m	
9	0.8	1m	
10	$30\text{ ml} \quad \textcircled{300\text{ ml}} \quad 3\text{ l}$ $30\text{ l} \quad 300\text{ l}$	1m	
11	eg 320, 360, 400 etc	1m	Accept any multiple of 40 > 300
12	£1.80	1m	
13	£37.50	1m	
14	500	1m	
15	60	1m	<b>Do not</b> accept 60%
16	12.5	1m	
17	45°	1m	
18	70	1m	
19	605	1m	
20	14	1m	

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Standards  
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