

Ma

KEY STAGE

2

LEVELS

3-5

2006

Mathematics tests

# Mark schemes

Test A, test B and mental mathematics test

2006



department for

**education and skills**

creating opportunity, releasing potential, achieving excellence



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# Marking the mathematics tests

As in 2005, external markers, employed by the external marking agencies under contract to QCA, will mark the test papers. 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 on the QCA website on 19 June 2006 ([www.qca.org.uk](http://www.qca.org.uk)).

## General guidance

### *The structure of the mark schemes*

The marking information for each question is set out in the form of tables, which start on page 6 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.

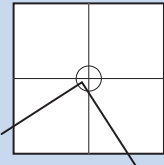
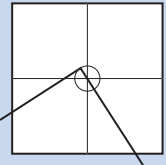
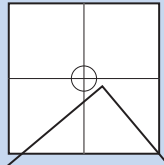
The ‘additional guidance’ column indicates alternative acceptable responses, and provides details of specific types of response which are unacceptable. Other guidance, such as the range of acceptable answers, is provided as necessary.

Additionally, for the mental mathematics test, general guidance on marking is given on page 18, together with a ‘quick reference’ mark scheme.

### *Applying the mark schemes*

In order to ensure consistency of marking, the most frequent procedural queries are listed on pages 2 and 3 with the action the marker will take. This is followed by further guidance on pages 4 and 5 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.

What if ...	Marking procedure	
The pupil's response is numerically or algebraically equivalent to the answer in the mark scheme.	Markers will award the mark unless the mark scheme states otherwise.	
The pupil's response does not match closely any of the examples given.	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 and, if there is still uncertainty, markers will contact the supervising marker.	
The pupil has responded in a non-standard way.	Calculations, formulae and written responses do not have to be set out in any particular format. 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 indicating a response. Any correct method of setting out working, however idiosyncratic, will be accepted.	
There appears to be a misreading affecting the working.	This is when the pupil 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.	
No answer is given in the expected place, but the correct answer is given elsewhere.	Where a pupil has shown understanding of the question, the mark(s) will be given. In particular, where a word or number response is expected, a pupil may meet the requirement by annotating a graph or labelling a diagram elsewhere in the question.	
The response in the answer box is wrong, but the correct answer is shown in the working.	<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 pupil has continued to give redundant extra working which does not contradict work already done</li> <li>■ the pupil 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>

<b>What if ...</b>	<b>Marking procedure</b>
The pupil's answer is correct but the wrong working is shown.	A correct response will always be marked as correct.
The correct response has been crossed out and not replaced.	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.
More than one answer is given.	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.
The answer is correct but, in a later part of the question, the pupil has contradicted this response.	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.
The pupil has drawn lines which do not meet at the correct point.	<p>Markers will interpret the phrase 'slight inaccuracies in drawing' to mean 'within or on a circle of radius 2mm with 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**

All questions, even those not attempted by the pupil, will be marked with a '1' or '0' entered in each marking space.

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.

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, and on the mark sheet.

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 2006 key stage 2 mathematics tests and mark schemes were developed by the Mathematics Test Development Team at Edexcel.

## 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; display: inline-block; padding: 2px 10px;">£</div>	<p>£3.20            £7                          £7.00</p> <p>Any unambiguous indication of the correct amount, eg</p> <p>£3.20p £3 20 pence £3 20 £3,20 £3-20 £3:20</p>	<p>Incorrect placement of pounds or pence, eg £320 £320p</p> <p>Incorrect placement of decimal point, or incorrect use or omission of 0, eg £3.2 £3 200 £32 0 £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; display: inline-block; padding: 2px 10px;">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 0.40p £40p</p>
<p><b>Where no sign is given</b></p> <p>for example: £3.20, 40p</p> <div style="border: 1px solid black; display: inline-block; width: 40px; height: 20px;"></div>	<p>£3.20            40p 320p            £0.40</p> <p>Any unambiguous indication of the correct amount, eg</p> <p>£3.20p            £0.40p £3 20 pence      £.40p £3 20              £.40 £3,20              40 £3-20              0.40 £3:20 3.20 320 3 pounds 20</p>	<p>Incorrect or ambiguous use of pounds or pence, eg</p> <p>£320              £40 £320p            £40p £3.2              0.4 3.20p</p>

### Responses involving time

	Accept	Do not accept
<p><b>A time interval</b> for example: 2 hours 30 minutes</p>	<p>2 hours 30 minutes Any unambiguous, correct indication, eg 2½ hours 2.5 hours 2h 30 2h 30min 150 minutes 150 Digital electronic time, ie 2:30</p>	<p>Incorrect or ambiguous time interval, eg 2.30 2-30 2,30 2.3 2.3 hours 2.3h 2h 3 2.30 min</p>
<p><b>A specific time</b> for example: 8:40am, 17:20</p>	<p>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</p>	<p>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 84</p>

### Responses involving measures

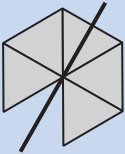
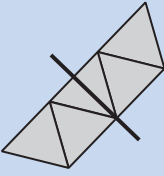
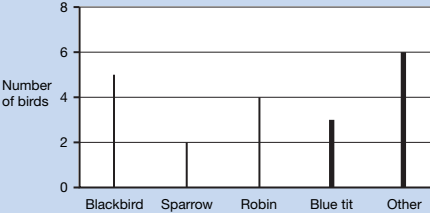
	Accept	Do not accept
<p><b>Where units are given</b> (eg kg, m, l) for example: 8.6kg</p> <div style="border: 1px solid black; display: inline-block; padding: 2px 10px; margin-top: 10px;"><b>kg</b></div>	<p>8.6kg Any unambiguous indication of the correct measurement, eg 8.60kg 8.6000kg 8kg 600g</p>	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

#### Note

If a pupil 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.

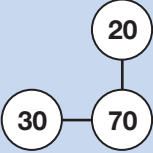


If a pupil changes the unit given in the answer box, then their answer must be equivalent to the correct answer using the unit they have chosen, unless otherwise indicated in the mark scheme.

## Test A questions 1–3

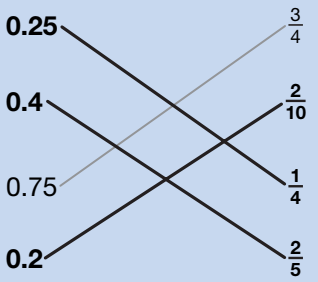
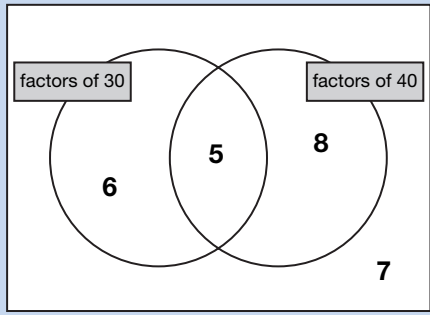
Question	Requirement	Mark	Additional guidance												
<b>1</b>	<p>Numbers written in correct order as shown:</p> <div style="display: flex; justify-content: center; gap: 10px;"> <div style="border: 1px solid black; padding: 2px 5px;">109</div> <div style="border: 1px solid black; padding: 2px 5px;">190</div> <div style="border: 1px solid black; padding: 2px 5px;">901</div> <div style="border: 1px solid black; padding: 2px 5px;">910</div> <div style="border: 1px solid black; padding: 2px 5px;">1091</div> </div>	<b>1m</b>													
<b>2</b>	<p>One line of symmetry correctly positioned on each diagram as shown:</p> <div style="display: flex; justify-content: center; gap: 20px;">   </div>	<b>1m</b>	<p><i>Accept slight inaccuracies in drawing provided the intention is clear.</i></p> <p><i>The length of the line is unimportant provided the intention is clear.</i></p>												
<b>3a</b>	<p>Graph completed as shown:</p>  <table border="1" style="margin-top: 10px; width: 100%; text-align: center;"> <caption>Data from Bar Chart</caption> <thead> <tr> <th>Bird Type</th> <th>Number of Birds</th> </tr> </thead> <tbody> <tr> <td>Blackbird</td> <td>5</td> </tr> <tr> <td>Sparrow</td> <td>2</td> </tr> <tr> <td>Robin</td> <td>4</td> </tr> <tr> <td>Blue tit</td> <td>3</td> </tr> <tr> <td>Other</td> <td>6</td> </tr> </tbody> </table>	Bird Type	Number of Birds	Blackbird	5	Sparrow	2	Robin	4	Blue tit	3	Other	6	<b>1m</b>	<p><i>Accept bar for 'blue tit' in the range 2.5 to 3.5 exclusive.</i></p> <p><i>Accept bar for 'other' within 2mm of correct length.</i></p>
Bird Type	Number of Birds														
Blackbird	5														
Sparrow	2														
Robin	4														
Blue tit	3														
Other	6														
<b>3b</b>	$\frac{1}{4}$	<b>1m</b>	<p><i>Accept equivalent fractions, eg <math>\frac{5}{20}</math></i></p> <p><b>Do not</b> accept 5</p>												



### Test A questions 4–8

Question	Requirement	Mark	Additional guidance
4a	4	1m	
4b	150	1m	
5	Diagram completed as shown: 	1m	
6a	1 hour 20 minutes	1m	<i>The answer is a time interval (see page 5 for guidance).</i>
6b	3:25	1m	<i>The answer is a specific time (see page 5 for guidance).</i>
7a	Boxes ticked as shown: <input checked="" type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>	1m 	<i>Accept alternative unambiguous indications such as <b>Y</b> or <b>N</b>.</i>
7b	Boxes ticked as shown: <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>	1m 	<i>Accept alternative unambiguous indications such as <b>Y</b> or <b>N</b>.</i>
8a	451	1m	
8b	110	1m	

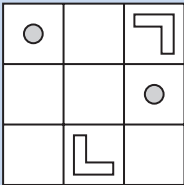
### Test A questions 9–13

Question	Requirement	Mark	Additional guidance
9	<p>Award <b>TWO</b> marks for the correct answer of 5</p> <p>If the answer is incorrect, award <b>ONE</b> mark for evidence of appropriate working, eg</p> $5 \times 25 = 125$ $12 \times 10 = 120$ $125 - 120 = \text{wrong answer}$	Up to 2m	Calculation must be performed for the award of <b>ONE</b> mark.
10	1717	1m	
11	<p>All numbers matched correctly as shown:</p> 	1m	<p><b>Do not</b> award the mark if additional incorrect lines are drawn.</p> <p>Lines need not touch the numbers provided the intention is clear.</p>
12a	4	1m	<b>Do not</b> accept a list of days of the week.
12b	Monday <b>AND</b> Thursday	1m	<p>Accept unambiguous abbreviations or recognisable misspellings.</p> <p>Accept days written in either order.</p>
13	<p>Award <b>TWO</b> marks for numbers written in the correct regions as shown:</p>  <p>If the answer is incorrect, award <b>ONE</b> mark for any three numbers written in the correct regions.</p>	Up to 2m	<p><b>Do not</b> accept numbers written in more than one region.</p> <p>Accept alternative indications such as lines drawn from the numbers to the appropriate regions of the diagram.</p>

## Test A questions 14–15

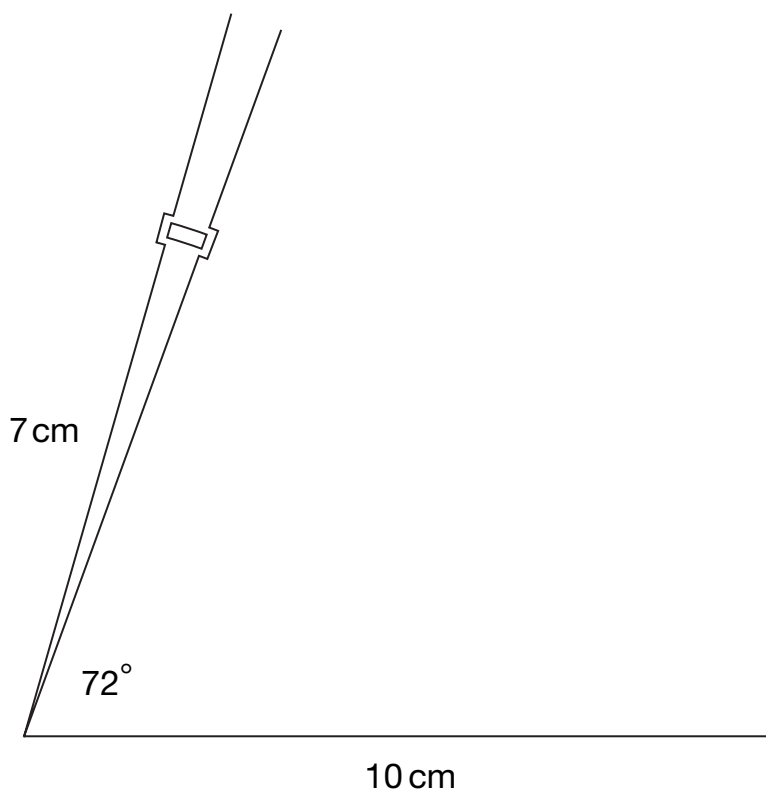
Question	Requirement	Mark	Additional guidance
			<p><i>Lines need not touch the time line provided the intended accuracy is clear.</i></p>
<b>14a</b>	Answer for tin can joined to the time line in the range 1805 to 1815 exclusive.	<b>1m</b>	
<b>14b</b>	Answer for computer joined to the time line in the range 1940 to 1950 exclusive.	<b>1m</b>	
<b>15a</b>	Two numbers circled as shown: <div style="border: 1px solid black; display: inline-block; padding: 2px;">71</div> <div style="border: 1px solid black; border-radius: 50%; padding: 2px; margin: 0 5px;">72</div> <div style="border: 1px solid black; display: inline-block; padding: 2px;">73</div> <div style="border: 1px solid black; display: inline-block; padding: 2px;">74</div> <div style="border: 1px solid black; border-radius: 50%; padding: 2px; margin: 0 5px;">75</div>	<b>1m</b>	<p><b>Do not</b> award the mark if additional incorrect numbers are circled.</p> <p>Accept alternative unambiguous indications, eg ticks, crosses.</p>
<b>15b</b>	<p>An explanation which recognises that 1003 is not a multiple of 3, eg:</p> <ul style="list-style-type: none"> <li>■ 'Because 1003 is not divisible by 3'</li> <li>■ 'Because 1003 is not a multiple of 3'</li> <li>■ 'Because 1003 is not in the 3 times table'</li> <li>■ 'Because I divided 1003 by 3 and there was a remainder'</li> <li>■ 'Because <math>1003 \div 3</math> has a decimal answer'</li> <li>■ 'Because <math>1 + 0 + 0 + 3 = 4</math>, and 4 is not a multiple of 3'</li> <li>■ 'Because 1003 has a digital sum of 4'</li> <li>■ 'Because 1002 is the nearest in the 3 times table'</li> <li>■ 'Because 1000 is not divisible by 3'</li> <li>■ 'Because 999 is divisible by 3'.</li> </ul>	<b>1m</b> <div style="border: 1px solid black; border-radius: 50%; padding: 2px; width: 20px; margin: 0 auto;">U1</div>	<p>No mark is awarded for circling 'No' alone.</p> <p><b>Do not</b> accept vague or arbitrary explanations, eg:</p> <ul style="list-style-type: none"> <li>■ 'Because 1003 ends in 3'</li> <li>■ 'Because 1003 is in the third column'</li> <li>■ 'Because if you keep going in 3s you will go past it'.</li> </ul> <p>If 'Yes' is circled but a correct unambiguous explanation is given, then award the mark.</p>

## Test A questions 16–20

Question	Requirement	Mark	Additional guidance
<b>16</b>	<p>Award <b>TWO</b> marks for three shapes drawn correctly on the diagram as shown:</p>  <p>If the answer is incorrect, award <b>ONE</b> mark for:</p> <ul style="list-style-type: none"> <li>■ the 'L' shape and any one of the two circles drawn correctly</li> </ul> <p><b>OR</b></p> <ul style="list-style-type: none"> <li>■ both circles drawn correctly <b>AND</b> the 'L' shape drawn in the correct square but orientated incorrectly.</li> </ul>	<b>Up to 2m</b>	<p>Accept slight inaccuracies in drawing provided the intention is clear.</p> <p>Circles need not be shaded.</p>
<b>17a</b>	6	<b>1m</b>	<p><b>Do not</b> accept vague or arbitrary explanations, eg:</p> <ul style="list-style-type: none"> <li>■ 'Because 7 and 1 make 8'</li> <li>■ 'Because there are 2 children left'.</li> </ul>
<b>17b</b>	<p>An explanation which recognises that a total of 10 children read between 4 and 6 books, eg:</p> <ul style="list-style-type: none"> <li>■ '10 children altogether read between 4 and 6 books, and 7 + 1 makes 8, so that leaves 2 children'</li> <li>■ 'Because 7 add 1 is 8, and you need 2 more'</li> <li>■ 'Because 10 children read 4 to 6 books'</li> <li>■ '8 and 2 more make 10 children altogether'</li> <li>■ '1 + 7 = 8, 8 + 2 = 10'.</li> </ul>	<b>1m</b> U1	
<b>18</b>	196.45	<b>1m</b>	
<b>19</b>	<p>Award <b>TWO</b> marks for the correct answer of 50</p> <p>If the answer is incorrect, award <b>ONE</b> mark for evidence of appropriate working, eg</p> <p>15 ÷ 3 = 5</p> <p>5 × 10 = wrong answer</p>	<b>Up to 2m</b> U1	<p>Calculation must be performed for the award of <b>ONE</b> mark.</p>
<b>20a</b>	Answer in the range $\frac{1}{10}$ to $\frac{3}{20}$ inclusive.	<b>1m</b>	<p>Range includes <math>\frac{1}{7}</math>, <math>\frac{1}{8}</math>, <math>\frac{1}{9}</math> and <math>\frac{1}{10}</math></p> <p>Accept decimals (0.1 to 0.15 inclusive) or percentages (10% – 15% inclusive).</p>
<b>20b</b>	Answer in the range 40 to 50 inclusive.	<b>1m</b>	

## Test A question 21

Markers will use a transparent overlay of this page to mark pupils' answers to this question.



Question	Requirement	Mark	Additional guidance
21	<p>Award <b>TWO</b> marks for a triangle drawn with an angle in the range 70° to 74° inclusive <b>AND</b> length of sloping line in the range 6.9cm to 7.1cm inclusive (ie upper vertex of triangle within inner box on diagram).</p> <p>If the answer is incorrect, award <b>ONE</b> mark for:</p> <ul style="list-style-type: none"> <li>a completed triangle drawn with an angle in the range 70° to 74° inclusive.</li> </ul> <p><b>OR</b></p> <ul style="list-style-type: none"> <li>a completed triangle drawn with an angle in the range 69° to 75° inclusive <b>AND</b> length of sloping line in the range 6.8cm to 7.2cm inclusive.</li> </ul>	Up to 2m	<p>Accept drawings where any side has been extended past a vertex.</p> <p>Accept drawings which do not use the given 10cm base line, provided they have used a line with a length in the range 9.9cm to 10.1cm inclusive.</p> <p>Accept for <b>ONE</b> mark drawings not using the given 10cm base line which have a base line outside the range 9.9cm to 10.1cm, provided they have an angle in the range 70° to 74° inclusive <b>AND</b> a sloping line in the range 6.9cm to 7.1cm inclusive.</p> <p>Accept for <b>ONE</b> mark drawings of incomplete triangles, provided they have an angle in the range 70° to 74° inclusive <b>AND</b> a sloping line in the range 6.9cm to 7.1cm inclusive.</p>

## Test A questions 22–23

Question	Requirement	Mark	Additional guidance
<b>22</b>	<p>Award <b>TWO</b> marks for the correct answer of 53</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>■ long division algorithm               <div style="margin-left: 20px;"> <math display="block">\begin{array}{r} \text{wrong answer} \\ 16 \overline{)848} \\ \underline{800} \\ 48 \\ \underline{-48} \\ 0 \end{array}</math> </div> </li> <li>■ short division algorithm               <div style="margin-left: 20px;"> <math display="block">\begin{array}{r} \text{wrong answer} \\ 16 \overline{)84^4}8 \end{array}</math> </div> </li> <li>■ repeated addition / subtraction methods, eg               <div style="margin-left: 20px;"> <math display="block">\begin{array}{r} 848 \\ -400 \\ \hline 448 \\ -400 \\ \hline 48 \\ -48 \\ \hline 0 \end{array} \quad \begin{array}{l} 25 \times 16 \\ 25 \times 16 \\ 3 \times 16 \end{array}</math> <p style="margin-left: 40px;">wrong answer</p> </div> </li> <li>■ repeated halving, eg               <div style="margin-left: 20px;"> <math display="block">\begin{array}{l} 848 \div 2 = 424 \\ 424 \div 2 = 212 \\ 212 \div 2 = 106 \\ 106 \div 2 = \text{wrong answer} \end{array}</math> </div> </li> </ul>	<b>Up to 2m</b>	<p><i>In all cases accept follow through of <b>ONE</b> error in working.</i></p> <p><i>Calculation must be performed for the award of <b>ONE</b> mark.</i></p> <p><b>Do not</b> award any marks if the final answer is missing.</p> <p><i>Variations on algorithms are acceptable, provided they represent a viable and complete method.</i></p> <p><i>Short division methods must be supported by evidence of appropriate carrying figures to indicate use of a division algorithm.</i></p> <p><b>No mark</b> is awarded for repeated addition / subtraction the wrong number of times.</p> <p><b>No mark</b> is awarded for repeated halving the wrong number of times.</p>
<b>23</b>	<p>Award <b>TWO</b> marks for all three numbers, as shown: 94, 95, 96</p> <p>If the answer is incorrect, award <b>ONE</b> mark for:</p> <ul style="list-style-type: none"> <li>■ two numbers correct and none incorrect</li> </ul> <p><b>OR</b></p> <ul style="list-style-type: none"> <li>■ three numbers correct and one incorrect</li> </ul> <p><b>OR</b></p> <ul style="list-style-type: none"> <li>■ 93, 94, 95, 96, 97</li> </ul>	<b>Up to 2m</b> <span style="border: 1px solid black; border-radius: 50%; padding: 2px 5px; display: inline-block;">U1</span>	<p><i>Accept numbers written in any order.</i></p> <p><i>All three numbers and no incorrect numbers must be given for the award of <b>TWO</b> marks.</i></p>

## Test B questions 1–6

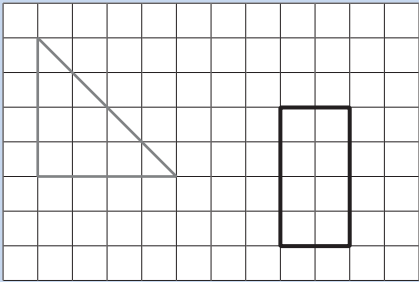
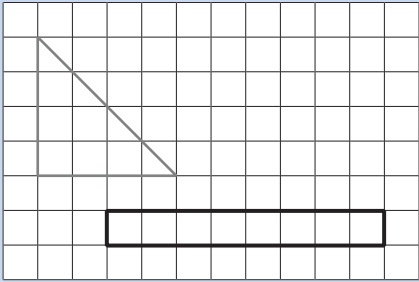
Question	Requirement	Mark	Additional guidance
<b>1a</b>	4	<b>1m</b>	
<b>1b</b>	599	<b>1m</b>	
<b>2</b>	<p>Award <b>TWO</b> marks for the four lines drawn as shown:</p> <p>If the answer is incorrect, award <b>ONE</b> mark for three correct lines drawn <b>AND</b> not more than one incorrect line drawn.</p>	<b>Up to 2m</b>	<p><b>Do not</b> award any marks if two or more incorrect lines are drawn.</p> <p><i>Lines need not touch the boxes provided the intention is clear.</i></p>
<b>3a</b>	5	<b>1m</b>	
<b>3b</b>	2	<b>1m</b>	
<b>4</b>	$\begin{array}{ c c } \hline 9 & 1 \\ \hline \end{array} + \begin{array}{ c c } \hline 9 & 1 \\ \hline \end{array} + \begin{array}{ c c } \hline 1 & 9 \\ \hline \end{array} = 201$ <p><b>OR</b></p> $\begin{array}{ c c } \hline 9 & 9 \\ \hline \end{array} + \begin{array}{ c c } \hline 9 & 1 \\ \hline \end{array} + \begin{array}{ c c } \hline 1 & 1 \\ \hline \end{array} = 201$	<b>1m</b> 	Accept the three two-digit numbers written in any order.
<b>5</b>	125	<b>1m</b>	
<b>6a</b>	£10.51	<b>1m</b>	
<b>6b</b>	<p>Award <b>TWO</b> marks for the correct answer of £2.26</p> <p>If the answer is incorrect, award <b>ONE</b> mark for evidence of appropriate method, eg</p> $34.99 + 12.75 = 47.74$ $50 - 47.74$ <p><b>OR</b></p> $50 - 12.75 - 34.99$	<b>Up to 2m</b>	<p>Accept for <b>ONE</b> mark £226 <b>OR</b> £226p as evidence of appropriate method.</p> <p><i>Answer need not be obtained for the award of <b>ONE</b> mark.</i></p>

### Test B questions 7–12

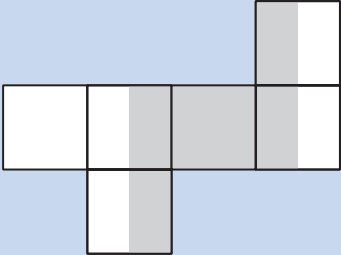
Question	Requirement	Mark	Additional guidance								
	<table border="1"> <tr> <td>x</td> <td>✓</td> </tr> <tr> <td>✓</td> <td>✓</td> </tr> <tr> <td>✓</td> <td>x</td> </tr> <tr> <td>x</td> <td>✓</td> </tr> </table>	x	✓	✓	✓	✓	x	x	✓		Accept alternative unambiguous indications such as <b>Y</b> and <b>N</b> .
x	✓										
✓	✓										
✓	x										
x	✓										
<b>7a</b>	First column of table completed correctly.	<b>1m</b>									
<b>7b</b>	Second column of table completed correctly.	<b>1m</b>									
<b>8a</b>	£14.40	<b>1m</b>	<b>Do not</b> accept £14.4								
<b>8b</b>	20	<b>1m</b>	<b>Do not</b> accept £20								
<b>9</b>	(5, 2)	<b>1m</b>	Coordinates must be written in the correct order. Accept unambiguous answers written on the diagram.								
<b>10</b>	Numbers circled as shown: 30   40   50 <b>60</b> <b>70</b>	<b>1m</b>	Accept alternative unambiguous indications, eg numbers ticked, crossed or underlined.								
<b>11</b>	Answer in the range 65 to 75 inclusive.	<b>1m</b>									
<b>12</b>	<table border="1"> <tr> <td>1</td> <td><b>5</b></td> <td><b>9</b></td> <td>13</td> </tr> </table>	1	<b>5</b>	<b>9</b>	13	<b>1m</b>					
1	<b>5</b>	<b>9</b>	13								



### Test B questions 13–15

Question	Requirement	Mark	Additional guidance
13a	Any odd numbered multiple of 10, ie 10 <b>OR</b> 30 <b>OR</b> 50 <b>OR</b> 70 <b>OR</b> 90 <b>OR</b> any number ending with any of the pairs of digits above.	1m	
13b	<p>An explanation which recognises that all multiples of 20 are also multiples of 10, eg:</p> <ul style="list-style-type: none"> <li>■ 'Because all the numbers in the 20 times table are also in the 10 times table'</li> <li>■ 'Because all multiples of 20 are multiples of 10'</li> <li>■ 'Because 20 is in the 10 times table'</li> <li>■ 'All multiples of 20 go in box A because 10 goes into them'</li> <li>■ '20 is a multiple of both 20 and 10, and so is 40, 60, etc'</li> <li>■ 'Because if it's not a multiple of 10, it can't be a multiple of 20'</li> <li>■ 'Because if it is a multiple of 20, it has to be a multiple of 10'</li> <li>■ 'Because 10 is a factor of 20'.</li> </ul>	<p>1m</p> <p>U1</p>	<p><b>Do not</b> accept vague or arbitrary explanations, eg:</p> <ul style="list-style-type: none"> <li>■ 'Because 40 is a multiple of 10'</li> <li>■ 'Because they would be in box A instead'</li> <li>■ 'Because all the multiples of 10 are multiples of 20'</li> <li>■ 'Because 10 is a multiple of 20'.</li> </ul>
14	£11.25	1m	
15	<p>Any rectangle with an area of 8 squares, eg</p>  <p>OR</p> 	1m	Accept slight inaccuracies in drawing provided the intention is clear.

## Test B questions 16–19

Question	Requirement	Mark	Additional guidance
<b>16</b>	<p>Award <b>TWO</b> marks for four faces correctly shaded as shown:</p>  <p>If the answer is incorrect, award <b>ONE</b> mark for:</p> <ul style="list-style-type: none"> <li>■ only the correct four faces marked <b>AND</b> at least two shaded correctly</li> </ul> <p><b>OR</b></p> <ul style="list-style-type: none"> <li>■ four faces shaded correctly <b>AND</b> one shaded incorrectly</li> </ul> <p><b>OR</b></p> <ul style="list-style-type: none"> <li>■ three faces shaded correctly <b>AND</b> none shaded incorrectly.</li> </ul>	<p><b>Up to 2m</b></p> <p style="text-align: center;">(U1)</p>	<p><i>The width of each shaded rectangle is irrelevant provided the intention is clear.</i></p>
<b>17</b>	<p>Award <b>TWO</b> marks for the correct answer of 60</p> <p>If the answer is incorrect, award <b>ONE</b> mark for evidence of appropriate method, eg</p> $800 - 500 = 300$ $300 \div 5$	<p><b>Up to 2m</b></p> <p style="text-align: center;">(U1)</p>	<p><i>Answer need not be obtained for the award of <b>ONE</b> mark.</i></p>
<b>18a</b>	<p>Answer in the range 3:10pm to 3:20pm inclusive.</p>	<b>1m</b>	<p><i>The answer is a specific time (see page 5 for guidance).</i></p>
<b>18b</b>	<p>Answer in the range 13 degrees to 14 degrees inclusive.</p>	<b>1m</b>	
<b>19</b>	<p>Award <b>TWO</b> marks for the correct answer of 30</p> <p>If the answer is incorrect, award <b>ONE</b> mark for evidence of appropriate method, eg</p> $45 \div 3 = 15$ $15 \times 2$	<p><b>Up to 2m</b></p>	<p><i>Answer need not be obtained for the award of <b>ONE</b> mark.</i></p>

### Test B questions 20–25

Question	Requirement	Mark	Additional guidance
<b>20</b>	Award <b>TWO</b> marks for all three numbers in order as shown: 129 <b>AND</b> 7492 <b>AND</b> 51  If the answer is incorrect, award <b>ONE</b> mark for two out of three numbers correct.	<b>Up to 2m</b>	<b>Do not</b> accept 129.0 <b>OR</b> 7492.0 <b>OR</b> 51.0 <b>OR</b> any other equivalent answers with zeroes after the decimal point.
<b>21</b>	40%	<b>1m</b>	<b>Do not</b> accept equivalent fractions or decimals.
<b>22a</b>	400	<b>1m</b>	Answer must be in grams.
<b>22b</b>	1200g <b>OR</b> 1.2kg <b>OR</b> for finding the correct difference between 1.6kg and the answer given for 22a.	<b>1m</b>	Accept 1200 <b>OR</b> 1.2 <b>OR</b> 1kg 200g
<b>23</b>	Two numbers circled as shown: <div style="text-align: center;"> <span style="border: 1px solid black; border-radius: 50%; padding: 2px 5px;">29</span>   39   49   <span style="border: 1px solid black; border-radius: 50%; padding: 2px 5px;">59</span>   69           </div>	<b>1m</b>	<b>Do not</b> award the mark if additional incorrect numbers are circled.  Accept alternative unambiguous indications, eg numbers ticked, crossed or underlined.
<b>24</b>	Diagram completed as shown: 	<b>1m</b>	Accept slight inaccuracies in drawing (see page 3 for guidance).
<b>25</b>	Award <b>TWO</b> marks for the correct answer of 14  If the answer is incorrect, award <b>ONE</b> mark for evidence of appropriate method, eg $17.5 \times 4 = 70$ $70 \div 5$	<b>Up to 2m</b> <span style="border: 1px solid black; border-radius: 50%; padding: 2px 5px;">U1</span>	Accept for <b>ONE</b> mark 140 <b>OR</b> 1.4 as evidence of appropriate method.  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 pupils 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 20. In addition, a ‘quick reference’ mark scheme is provided on page 19. This is presented in a similar format to the pupil’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. Pupils 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 pupil’s intended answer. Accept also any other way of indicating the correct answer, eg underlining.

# Mental mathematics 2006 quick reference mark scheme

Practice question

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Time: 5 seconds

<b>1</b>	<b>200</b>
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<b>2</b>	<b>45</b> p
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<b>3</b>	<b>6</b>
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<b>4</b>	<b>3.4</b>
----------	------------

<b>5</b>	<b>9900</b>
----------	-------------

Time: 10 seconds

<b>6</b>	<b>710</b>
----------	------------

<b>7</b>	<b>450</b>
----------	------------

<b>8</b>	<b>35p</b>
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<b>9</b>	<b>150</b> mm	Do <b>not</b> accept 15cm
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<b>10</b>	<b>5</b>
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<b>11</b>	<b><math>10\frac{1}{2}</math></b>	Accept 10.5 or equivalent fractions
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<b>12</b>	<b>-3</b> °C	Do <b>not</b> accept 3-
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<b>13</b>	<b>48</b> cm <sup>2</sup>
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<b>14</b>	<b><math>\frac{1}{10}</math></b>	Accept 0.1 or 10% or equivalent fractions
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<b>15</b>	<b>0.009</b>
-----------	--------------

Time: 15 seconds

<b>16</b>	<b>60</b>
-----------	-----------

<b>17</b>	0.7 <b>0.077</b> 0.707
	0.77    7.007

<b>18</b>	<b>32</b>
-----------	-----------

<b>19</b>	£ <b>11.70</b>
-----------	----------------

<b>20</b>	<b>15</b> girls
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## Mental mathematics questions 1–20

Question	Requirement	Mark	Additional guidance
1	200	1m	
2	45p	1m	
3	6	1m	
4	3.4	1m	
5	9900	1m	
6	710	1m	
7	450	1m	
8	35p	1m	
9	150mm	1m	<b>Do not</b> accept 15cm
10	5	1m	
11	$10\frac{1}{2}$	1m	Accept 10.5 <b>OR</b> equivalent fractions.
12	$-3^{\circ}\text{C}$	1m	<b>Do not</b> accept 3–
13	$48\text{cm}^2$	1m	
14	$\frac{1}{10}$	1m	Accept 0.1 <b>OR</b> 10% <b>OR</b> equivalent fractions.
15	0.009	1m	
16	60	1m	
17	<div style="display: flex; justify-content: space-around; align-items: center;"> <span>0.7</span> <span style="border: 1px solid black; border-radius: 50%; padding: 2px;">0.077</span> <span>0.707</span> </div> <div style="display: flex; justify-content: space-around; align-items: center; margin-top: 5px;"> <span>0.77</span> <span>7.007</span> </div>	1m	Accept any other way of indicating the answer, eg underlining. <b>Do not</b> accept if more than one answer is indicated unless the pupil's intention is clear.
18	32	1m	
19	£11.70	1m	
20	15 girls	1m	



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