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KEY STAGE

2

LEVELS

3-5

2005

Mathematics tests

# Mark schemes

Test A, test B and mental mathematics test

2005



department for

**education and skills**

creating opportunity, releasing potential, achieving excellence

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# Marking the mathematics tests

As in 2004, 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 20 June 2005 ([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.

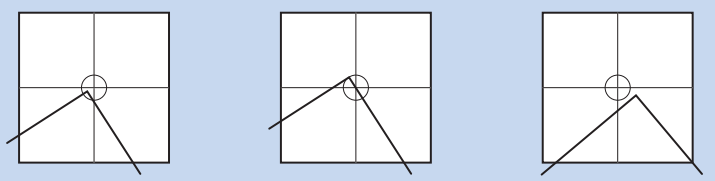
The ‘additional guidance’ column indicates alternative acceptable responses, and provides details of specific types of response which are unacceptable. Other guidance, such as the range of acceptable answers, is provided as necessary.

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 child'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 child'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 child has responded in a non-standard way.	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.	
There appears to be a misreading affecting the working.	<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.</p> <p>In one-mark questions – 0 marks are awarded.</p> <p>In two-mark questions that have a method mark – 1 mark will be awarded if the correct method is correctly implemented with the misread numbers.</p>	
No answer is given in the expected place, but the correct answer is given elsewhere.	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.	
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 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>

<b>What if ...</b>	<b>Marking procedure</b>
The child'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 child 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 child 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>  <p>within the circle accepted</p> <p>on the circle accepted</p> <p>outside the circle <b>not</b> accepted</p>

### **Recording marks awarded on the test paper**

In the shaded margin there is a mark box for each question part. For the written tests, the number of marks gained on each double page will be written in the total box 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.

All questions in the tests, even those not attempted by the child, will be marked with a '1' or '0' entered in the mark box.

A two-mark question which is correct has '1' entered in both mark boxes.

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 mark box and '0' in the second. Otherwise '0' will be entered in both mark boxes.

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 2005 key stage 2 mathematics tests and mark schemes were developed by the Mathematics Test Development Team at QCA.

## 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; margin: 10px 0;">£</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; padding: 5px; width: fit-content; margin: 10px 0;">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; padding: 5px; width: fit-content; margin: 10px 0;"></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></p> <p>for example: 2 hours 30 minutes</p>	<p>2 hours 30 minutes</p> <p>Any unambiguous indication, eg</p> <p><math>2\frac{1}{2}</math> hours</p> <p>2.5 hours</p> <p>2h 30</p> <p>2h 30 min</p> <p>Digital electronic time, ie</p> <p>2:30</p>	<p>Incorrect or ambiguous time interval, eg</p> <p>2.30</p> <p>2-30</p> <p>2,30</p> <p>2.3</p> <p>2.3 hours</p> <p>2.3h</p> <p>2h 3</p> <p>2.30 min</p>
<p><b>A specific time</b></p> <p>for example: 8:40am, 17:20</p>	<p>8:40am</p> <p>8:40</p> <p>twenty to nine</p> <p>Any unambiguous, correct indication, eg</p> <p>08.40</p> <p>8.40</p> <p>0840</p> <p>8 40</p> <p>8-40</p> <p>8,40</p> <p>Unambiguous change to 12 or 24 hour clock, eg</p> <p>17:20 as 5:20pm or 17:20pm</p>	<p>Incorrect time, eg</p> <p>8.4am</p> <p>8.40pm</p> <p>Incorrect placement of separators, spaces, etc or incorrect use or omission of 0, eg</p> <p>840</p> <p>8:4:0</p> <p>8.4</p> <p>084</p> <p>84</p>

### Responses involving measures

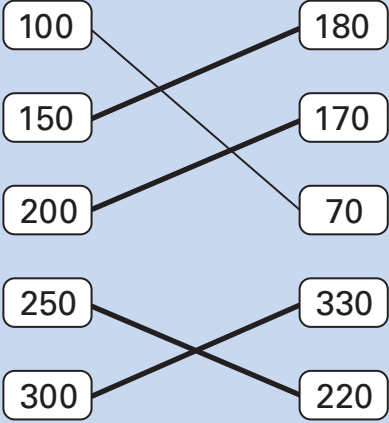
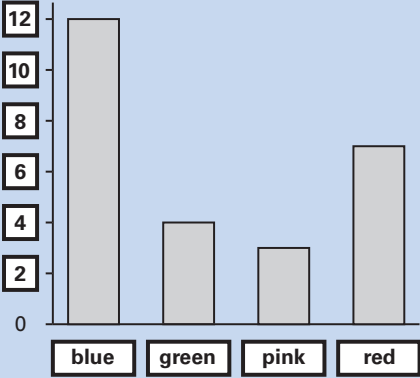
	Accept	Do not accept
<p><b>Where units are given</b> (eg kg, m, l)</p> <p>for example: 8.6kg</p> <div style="border: 1px solid black; display: inline-block; padding: 2px 10px; margin-top: 5px;">kg</div>	<p>8.6kg</p> <p>Any unambiguous indication of the correct measurement, eg</p> <p>8.60kg</p> <p>8.6000kg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

#### 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.

### Test A questions 1–3

Question	Requirement	Mark	Additional guidance
<p><b>1</b></p>	<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>	<p><b>Up to 2m</b></p>	<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>
<p><b>2</b></p>	<p>One of the following triples:</p> <p>11, 12, 17      13, 18, 19</p> <p>11, 13, 16      14, 17, 19</p> <p>11, 14, 15      15, 16, 19</p> <p>12, 13, 15      15, 17, 18</p>	<p><b>1m</b></p>	<p><i>Accept alternative unambiguous indications, eg ticks, crosses.</i></p> <p><b>Do not</b> award the mark if fewer or more than three numbers are circled.</p>
<p><b>3a</b></p> <p><b>3b</b></p>	 <p>Vertical axis completed correctly.</p> <p>Horizontal axis completed correctly.</p>	<p><b>1m</b></p> <p><b>1m</b></p>	<p><i>Accept abbreviations or recognisable misspellings.</i></p>



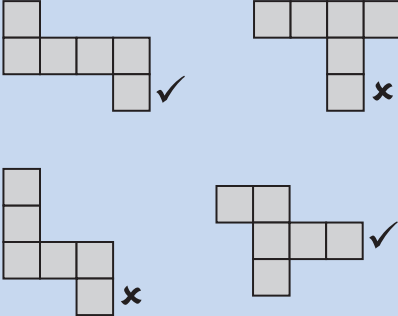
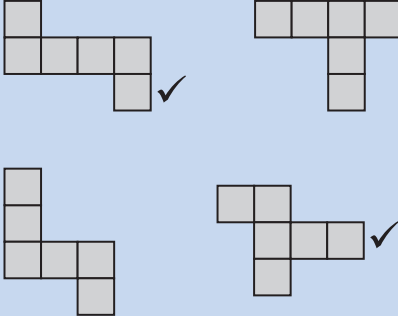
### Test A questions 4–9

Question	Requirement	Mark	Additional guidance
4a	30 minutes	1m	The answer is a time interval (see page 5 for guidance).
4b	9:25 am	1m	The answer is a specific time (see page 5 for guidance).
5	14	1m	
6a	B AND D	1m	Both letters must be given. Letters may be given in either order.
6b	C AND E	1m	Both letters must be given. Letters may be given in either order.
7a	Award <b>TWO</b> marks for the correct answer of £4.10 <b>OR</b> 410p If the answer is incorrect, award <b>ONE</b> mark for evidence of appropriate working, eg $4 \times 60 = 240$ $2 \times 85 = 170$ $240 + 170 =$ wrong answer	Up to 2m	Accept for <b>ONE</b> mark £410 <b>OR</b> £410p as evidence of appropriate working. Calculation must be performed for the award of <b>ONE</b> mark.
7b	£3.00	1m	
8	1614	1m	
9	Award <b>TWO</b> marks for all five numbers in any order as shown: 624, 642, 646, 662, 664  If the answer is incorrect, award <b>ONE</b> mark for: <ul style="list-style-type: none"> <li>■ four out of five numbers correct and none incorrect</li> </ul> <b>OR</b> <ul style="list-style-type: none"> <li>■ five numbers correct and only one incorrect.</li> </ul>	Up to 2m  U1	Ignore 626 or repeats of the five correct responses.  For <b>ONE</b> mark, ignore four-digit numbers.

### Test A questions 10–13

Question	Requirement	Mark	Additional guidance						
10	<p>Two cards ticked as shown:</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td style="text-align: center;">0.01 ✓</td> <td style="text-align: center;">0.11</td> <td style="text-align: center;">1.01</td> </tr> <tr> <td style="text-align: center;">9.09</td> <td style="text-align: center;">9.9</td> <td style="text-align: center;">9.99 ✓</td> </tr> </table>	0.01 ✓	0.11	1.01	9.09	9.9	9.99 ✓	1m	Accept alternative unambiguous indications such as circling or a line joining the correct pair of cards.
0.01 ✓	0.11	1.01							
9.09	9.9	9.99 ✓							
11	$\frac{5}{9}$	1m	Accept equivalent fractions.						
12	<p>Award <b>TWO</b> marks for signs written in the order shown:</p> <p>&lt;</p> <p>&gt;</p> <p>=</p> <p>If the answer is incorrect, award <b>ONE</b> mark for two out of three signs correct.</p>	Up to 2m							
13	<p>Two more lines drawn as shown:</p>	1m	<p>Accept slight inaccuracies in drawing (see page 3 for guidance).</p> <p><b>Do not</b> accept lines drawn outside of the grid.</p> <p>Ignore line of symmetry if drawn.</p>						

### Test A questions 14–17

Question	Requirement	Mark	Additional guidance
14	<p>An explanation which recognises that the numbers of odd and even cards are not equal, eg</p> <ul style="list-style-type: none"> <li>■ 'Because there are more odds than evens';</li> <li>■ 'Because there are fewer evens than odds';</li> <li>■ 'Because Sapna scores on more than half of the cards';</li> <li>■ 'Because there are only three even numbers';</li> <li>■ 'Because Josh has 3 cards and Sapna has 4 cards';</li> <li>■ 'Because Sapna has more chances'.</li> </ul>	<p>1m</p> <p>U1</p>	<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 fair means half the time';</li> <li>■ 'Because there are 7 cards';</li> <li>■ 'Because there is an odd number of cards';</li> <li>■ 'Because the game is unfair';</li> <li>■ 'Because Sapna will always win'.</li> </ul> <p>If 'Yes' is circled but a correct, unambiguous explanation is given, then award the mark.</p>
15a	Answer in the range 104 to 106 inclusive.	1m	
15b	5	1m	
16	<p>Award <b>TWO</b> marks for diagrams ticked or crossed as shown:</p>  <p>If the answer is incorrect, award <b>ONE</b> mark for three diagrams ticked or crossed correctly.</p>	<p>Up to 2m</p>	<p>Accept alternative unambiguous indications such as <b>Y</b> or <b>N</b>.</p> <p>For <b>TWO</b> marks accept:</p> 
17a	Answer in the range 126mm to 128mm inclusive.	1m	
17b	Answer in the range 21 degrees to 23 degrees inclusive.	1m	

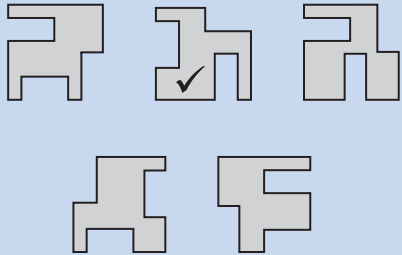
## Test A questions 18–20

Question	Requirement	Mark	Additional guidance												
<b>18</b>	<p>Award <b>TWO</b> marks for boxes ticked and crossed as shown:</p> <div style="display: flex; flex-direction: column; gap: 5px;"> <div style="border: 1px solid black; width: 20px; height: 20px; display: flex; align-items: center; justify-content: center;"><math>\times</math></div> <div style="border: 1px solid black; width: 20px; height: 20px; display: flex; align-items: center; justify-content: center;"><math>\checkmark</math></div> <div style="border: 1px solid black; width: 20px; height: 20px; display: flex; align-items: center; justify-content: center;"><math>\times</math></div> <div style="border: 1px solid black; width: 20px; height: 20px; display: flex; align-items: center; justify-content: center;"><math>\checkmark</math></div> </div> <p>If the answer is incorrect, award <b>ONE</b> mark for any three boxes correctly completed.</p>	<b>Up to 2m</b>	<p>Accept alternative unambiguous indications such as <b>Y</b> or <b>N</b>.</p> <p>For <b>TWO</b> marks, accept:</p> <div style="display: flex; flex-direction: column; gap: 5px;"> <div style="border: 1px solid black; width: 20px; height: 20px;"></div> <div style="border: 1px solid black; width: 20px; height: 20px; display: flex; align-items: center; justify-content: center;"><math>\checkmark</math></div> <div style="border: 1px solid black; width: 20px; height: 20px;"></div> <div style="border: 1px solid black; width: 20px; height: 20px; display: flex; align-items: center; justify-content: center;"><math>\checkmark</math></div> </div>												
<b>19</b>	36 <b>AND</b> 9	<b>1m</b>	Numbers may be given in either order.												
<b>20</b>	<p>Award <b>TWO</b> marks for the correct answer of 5291</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 multiplication algorithm such as           <div style="margin-left: 20px;"> <math display="block">\begin{array}{r} 143 \\ \times 37 \\ \hline 1001 \\ 4290 \\ \hline \end{array}</math> <p>wrong answer</p> </div> </li> <li>■ grid method           <div style="margin-left: 20px;"> <table style="border-collapse: collapse; margin-left: 20px;"> <tr> <td style="border-right: 1px solid black; padding: 5px;"></td> <td style="padding: 5px;">100</td> <td style="padding: 5px;">40</td> <td style="padding: 5px;">3</td> </tr> <tr> <td style="border-right: 1px solid black; padding: 5px;">30</td> <td style="padding: 5px;">3000</td> <td style="padding: 5px;">1200</td> <td style="padding: 5px;">90</td> </tr> <tr> <td style="border-right: 1px solid black; padding: 5px;">7</td> <td style="padding: 5px;">700</td> <td style="padding: 5px;">280</td> <td style="padding: 5px;">21</td> </tr> </table> <p>= wrong answer</p> </div> </li> <li>■ decomposition methods, eg           <div style="margin-left: 20px;"> <math display="block">143 \times 40 = 5720</math> <math display="block">143 \times 3 = 429</math> <math display="block">5720 - 429 = \text{wrong answer}</math> </div> </li> </ul>		100	40	3	30	3000	1200	90	7	700	280	21	<b>Up to 2m</b>	<p>In all cases accept follow through of <b>ONE</b> error in working.</p> <p><b>Do not</b> award any marks if:</p> <ul style="list-style-type: none"> <li>■ the error is in the place value, eg the omission of the zero when multiplying by three tens,           <div style="margin-left: 20px;"> <math display="block">\begin{array}{r} 1001 \\ +429 \\ \hline \end{array}</math> </div> </li> <li>■ the final (answer) line of digits is missing.</li> </ul> <p>Variations on algorithms are acceptable, provided they represent viable and complete methods.</p> <p>Calculation must be performed for the award of <b>ONE</b> mark.</p>
	100	40	3												
30	3000	1200	90												
7	700	280	21												

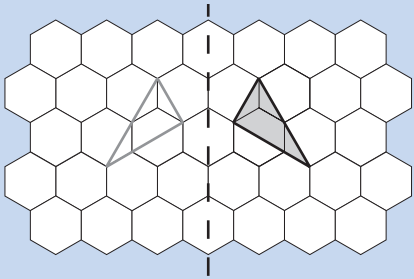
### Test A questions 21–24

Question	Requirement	Mark	Additional guidance
21	<p>Award <b>TWO</b> marks for boxes ticked and crossed as shown:</p> <div style="display: flex; flex-direction: column; gap: 5px;"> <div style="border: 1px solid black; padding: 2px; text-align: center;">✓</div> <div style="border: 1px solid black; padding: 2px; text-align: center;">✗</div> <div style="border: 1px solid black; padding: 2px; text-align: center;">✗</div> <div style="border: 1px solid black; padding: 2px; text-align: center;">✓</div> </div> <p>If the answer is incorrect, award <b>ONE</b> mark for any three boxes correctly completed.</p>	Up to 2m	<p>Accept alternative unambiguous indications such as <b>Y</b> or <b>N</b>.</p> <p>For <b>TWO</b> marks, accept:</p> <div style="display: flex; flex-direction: column; gap: 5px;"> <div style="border: 1px solid black; padding: 2px; text-align: center;">✓</div> <div style="border: 1px solid black; padding: 2px; text-align: center;">□</div> <div style="border: 1px solid black; padding: 2px; text-align: center;">□</div> <div style="border: 1px solid black; padding: 2px; text-align: center;">✓</div> </div>
22	<div style="display: flex; gap: 10px;"> <div style="border: 1px solid black; padding: 2px; text-align: center;"><math>\frac{3}{5}</math></div> <div style="border: 1px solid black; padding: 2px; text-align: center;"><math>\frac{3}{4}</math></div> <div style="border: 1px solid black; padding: 2px; text-align: center;"><math>\frac{17}{20}</math></div> <div style="border: 1px solid black; padding: 2px; text-align: center;"><math>\frac{9}{10}</math></div> </div>	1m	<p>Fractions must be written in the correct order for the award of the mark.</p> <p>Accept equivalent fractions or decimals.</p>
23	<p>Award <b>TWO</b> marks for the correct answer as shown:</p> <p><b>A = <span style="border: 1px solid black; padding: 2px;">-80</span>    B = <span style="border: 1px solid black; padding: 2px;">60</span></b></p> <p>If the answer is incorrect, award <b>ONE</b> mark for evidence of appropriate working, eg</p> $140 \div 7 = 20$	Up to 2m	<p>Accept 'minus 80'</p> <p><b>Do not</b> accept '80-'</p> <p>Answer need not be obtained for the award of <b>ONE</b> mark.</p> <p>Accept for <b>ONE</b> mark:</p> <p><b>A = -80 AND B = wrong answer OR</b></p> <p><b>A = -80 AND B = blank OR</b></p> <p><b>A = 80 AND B = 60 OR</b></p> <p><b>A = 80 AND B = -60 OR</b></p> <p><b>A = 60 AND B = -80</b></p>
24	<p>Award <b>TWO</b> marks for the correct answer of 42</p> <p>If the answer is incorrect, award <b>ONE</b> mark for evidence of appropriate working, eg</p> $18 - 10 = 8$ $10 + (4 \times 8) = \text{wrong answer}$ <p><b>OR</b></p> <p>10, 18, 26, 34, wrong answer</p>	<p>Up to 2m</p> <div style="border: 1px solid black; border-radius: 50%; width: 20px; height: 20px; text-align: center; line-height: 20px; margin: 5px auto;">U1</div>	<p>Calculation must be performed for the award of <b>ONE</b> mark.</p>

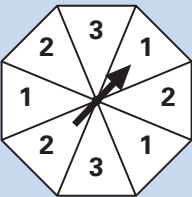
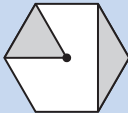
### Test B questions 1–3

Question	Requirement	Mark	Additional guidance
1	<p>Amounts written in correct order as shown:</p> <p> <input type="text" value="£0.75"/> <input type="text" value="99p"/> <input type="text" value="£2.05"/> <input type="text" value="£9"/> <input type="text" value="£10.50"/> </p>	1m	<p>Accept use of equivalent units, eg 75p.</p> <p>Accept answers with missing or incorrect units.</p>
2	<p>Three numbers circled as shown:</p> <p> <input type="text" value="64"/> <input type="text" value="32"/> <input type="text" value="16"/> <input type="text" value="8"/> <input type="text" value="4"/> <input type="text" value="2"/> <input type="text" value="1"/> </p>	1m	<p><b>Do not</b> award the mark if additional incorrect numbers are circled.</p> <p>Accept unambiguous alternatives, eg numbers ticked, crossed or underlined.</p>
3	<p>The correct shape ticked as follows:</p> 	1m	<p>Accept alternative unambiguous indications of the correct shape, eg shape circled.</p>

### Test B questions 4–8

Question	Requirement	Mark	Additional guidance															
4a	<p>Award <b>TWO</b> marks for the correct answer of £1.38</p> <p>If the answer is incorrect, award <b>ONE</b> mark for evidence of appropriate method, eg</p> $78 + \left(\frac{1}{2} \times 1.20\right)$	<b>Up to 2m</b>	<p>Accept for <b>ONE</b> mark £138p <b>OR</b> £138 as evidence of an appropriate method.</p> <p>Answer need not be obtained for the award of <b>ONE</b> mark.</p>															
4b	6	<b>1m</b>																
5	<p>Diagram completed as shown:</p> 	<b>1m</b>	Accept slight inaccuracies in drawing (see page 3 for guidance).															
6a	$\boxed{7} + \boxed{18} = \boxed{25}$	<b>1m</b>																
6b	$\boxed{25} \times \boxed{3} = \boxed{75}$	<b>1m</b>																
		U1																
7	<p>Award <b>TWO</b> marks for table completed correctly as shown:</p> <table border="1" data-bbox="341 1346 761 1608"> <thead> <tr> <th></th> <th>number of flat surfaces</th> <th>number of curved surfaces</th> </tr> </thead> <tbody> <tr> <td>sphere</td> <td>0</td> <td>1</td> </tr> <tr> <td>cone</td> <td>1</td> <td>1</td> </tr> <tr> <td>cuboid</td> <td>6</td> <td>0</td> </tr> <tr> <td>cylinder</td> <td>2</td> <td>1</td> </tr> </tbody> </table> <p>If the answer is incorrect, award <b>ONE</b> mark for two out of three rows completed correctly.</p>		number of flat surfaces	number of curved surfaces	sphere	0	1	cone	1	1	cuboid	6	0	cylinder	2	1	<b>Up to 2m</b>	Accept a blank box for '0'.
	number of flat surfaces	number of curved surfaces																
sphere	0	1																
cone	1	1																
cuboid	6	0																
cylinder	2	1																
8a	Answer in the range 340 to 360 inclusive.	<b>1m</b>																
8b	Answer in the range 240 to 260 inclusive.	<b>1m</b>																

### Test B questions 9–15

Question	Requirement	Mark	Additional guidance
9a	955 in first box.	1m	
9b	1010 in second box.	1m	
10	<p>Accept for <b>TWO</b> marks any arrangement using one of the following sets of eight numbers:</p> <p>1, 1, 1, 2, 2, 2, 3, 3</p> <p><b>OR</b></p> <p>1, 1, 1, 1, 2, 2, 2, 2</p> <p>eg</p>  <p>If the answer is incorrect, award <b>ONE</b> mark for an arrangement such that:</p> <ul style="list-style-type: none"> <li>the number of 1s and 2s is equal</li> </ul> <p><b>OR</b></p> <ul style="list-style-type: none"> <li>the number of 3s is less than the number of 2s <b>AND</b> the number of 3s is less than the number of 1s.</li> </ul>	<p><b>Up to 2m</b></p> <p>U1</p>	<p>Numbers may be written in any order.</p> <p><b>Do not</b> accept answers that leave sections blank or include numbers other than 1, 2 or 3.</p>
11	29	1m	
12	12	1m	
13	Sapna <input type="text" value="8"/> Robbie <input type="text" value="6"/>	<p>1m</p> <p>U1</p>	
14	<p>Shape completed correctly, as shown:</p> 	1m	Shape need not be completed accurately, provided the two correct triangles are identified unambiguously.
15a	(0, 10)	1m	Coordinates must be written in the correct order.
15b	(10, 20)	1m	Accept unambiguous answers written on the diagram.  If the answer for 15a is (10, 0) <b>AND</b> the answer to 15b is (20, 10), award <b>ONE</b> mark only, in the 15b box.



## Test B questions 16–18

Question	Requirement	Mark	Additional guidance
<b>16</b>	<p>Award <b>TWO</b> marks for all four factors, as shown: 1, 2, 5, 10</p> <p>If the answer is incorrect, award <b>ONE</b> mark for:</p> <ul style="list-style-type: none"> <li>■ three factors correct and none incorrect</li> </ul> <p><b>OR</b></p> <ul style="list-style-type: none"> <li>■ four factors correct and one incorrect.</li> </ul>	<b>Up to 2m</b>	<p>Accept factors written in any order.</p> <p>All four factors and no incorrect numbers must be given for the award of <b>TWO</b> marks.</p>
<b>17</b>	$\boxed{3} \boxed{2} \times \boxed{3} \boxed{2} = \boxed{1} \boxed{0} \boxed{2} \boxed{4}$	<b>1m</b>  ⓪	Accept 32
<b>18a</b>	Answer in the range 14 to 16 inclusive.	<b>1m</b>	
<b>18b</b>	<p>An explanation which recognises that the bar for tomato is shorter than the other two bars added together, eg</p> <ul style="list-style-type: none"> <li>■ 'Because there are 300 children altogether and only 135 chose tomato';</li> <li>■ 'Because 165 is more than 135';</li> <li>■ 'Because double 135 is 270 and there are more children than that altogether';</li> <li>■ 'Because half of 300 is 150';</li> <li>■ 'Because tomato is less than mushroom add chicken'.</li> </ul>	<b>1m</b>  ⓪	<p>No mark is awarded for writing 'No' alone.</p> <p><b>Do not</b> accept vague or arbitrary explanations, eg</p> <ul style="list-style-type: none"> <li>■ 'Because most of the children chose tomato';</li> <li>■ 'Because 135 children chose tomato';</li> <li>■ 'Because 75 + 135 + 90 = 300'.</li> </ul> <p>If 'Yes' is circled but a correct, unambiguous explanation is given then award the mark.</p>

### Test B questions 19–21

Question	Requirement	Mark	Additional guidance
19	<p>Award <b>TWO</b> marks for the correct answer of 8</p> <p>If the answer is incorrect, award <b>ONE</b> mark for evidence of an appropriate method, eg</p> $1 + 2 + 3 = 6$ $24 \div 6 = 4$ $4 \times 2$ <p><b>OR</b></p> <p>6 fruits    2 oranges            12 fruits    4 oranges            18 fruits    6 oranges            24 fruits    wrong answer</p>	<p><b>Up to 2m</b></p>	<p><i>Answer need not be obtained for the award of <b>ONE</b> mark.</i></p>
20	<p><b>7.4</b> and <b>9.4</b></p>	<p><b>1m</b></p> <p>U1</p>	<p><i>Accept numbers in either order.</i></p> <p><i>Both numbers must be correct for the award of the mark.</i></p>
21	<p><math>x = </math> <b>35°</b></p>	<p><b>1m</b></p>	

### Test B questions 22–25

Question	Requirement	Mark	Additional guidance																
22	<p>Award <b>TWO</b> marks for all seven boxes completed correctly as shown:</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th></th> <th>hockey</th> <th>rounders</th> <th>Total</th> </tr> </thead> <tbody> <tr> <th>boys</th> <td>22</td> <td>28</td> <td>50</td> </tr> <tr> <th>girls</th> <td>27</td> <td>26</td> <td>53</td> </tr> <tr> <th>Total</th> <td>49</td> <td>54</td> <td>103</td> </tr> </tbody> </table> <p>If the answer is incorrect, award <b>ONE</b> mark for five or six boxes completed correctly.</p>		hockey	rounders	Total	boys	22	28	50	girls	27	26	53	Total	49	54	103	<p>Up to 2m</p> <p style="text-align: center;">(U1)</p>	
	hockey	rounders	Total																
boys	22	28	50																
girls	27	26	53																
Total	49	54	103																
23a	18	1m	<b>Do not</b> accept 18%																
23b	200	1m	<b>Do not</b> accept 200% If the answer for 23a is 18% <b>AND</b> the answer for 23b is 200%, award <b>ONE</b> mark only in the 23b box.																
24	<p>Award <b>TWO</b> marks for the correct answer of 26.8cm</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>■ <math>85 \div 2 = 15.7</math></li> </ul> <p><b>OR</b></p> <ul style="list-style-type: none"> <li>■ <math>85 - (15.7 \times 2) =</math> wrong answer wrong answer <math>\div 2</math></li> </ul> <p><b>OR</b></p> <ul style="list-style-type: none"> <li>■ <math>85 - (15.7 \times 2) = 53.6</math></li> </ul>	<p>Up to 2m</p>	<p>Award <b>ONE</b> mark for an answer of 53.6 <b>OR</b> for 53.6 shown with no evidence of an incorrect method.</p> <p>Answer need not be obtained for the award of <b>ONE</b> mark.</p>																
25	<p>Award <b>TWO</b> marks for the correct answer of 0.15</p> <p>If the answer is incorrect, award <b>ONE</b> mark for evidence of appropriate method, eg</p> <p><math>45 - 12 = 33</math> <math>33 \div 220</math></p>	<p>Up to 2m</p>	<p>Accept equivalent fractions, eg <math>\frac{3}{20}</math></p> <p>Accept for <b>ONE</b> mark 0.015 <b>OR</b> 15 <b>OR</b> 1.5 <b>OR</b> 150 as evidence of appropriate method.</p> <p>Answer need not be obtained for the award of <b>ONE</b> mark.</p>																

# 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 20. In addition, a ‘quick reference’ mark scheme is provided on page 19. 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.

# Mental mathematics 2005

## quick reference mark scheme

Practice question

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Time: 5 seconds

<b>1</b>	<b>68</b>
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<b>2</b>	<b>79</b>
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<b>3</b>	<b>36</b>
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<b>4</b>	<b>70 %</b>	Do <b>not</b> accept 0.7, $\frac{7}{10}$ or equivalent
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<b>5</b>	<b>500 000</b>	Words not acceptable
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Time: 10 seconds

<b>6</b>	$2^{\circ}\text{C}$ $-5^{\circ}\text{C}$ $5^{\circ}\text{C}$ $0^{\circ}\text{C}$ $-1^{\circ}\text{C}$
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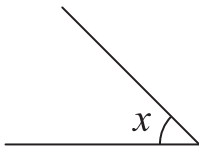
<b>7</b>	<b>50 cm</b>
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<b>8</b>	<b>2</b>	Accept 5r2 or remainder 2
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<b>9</b>	Prices	
	pen	£1.20
	ruler	£0.75
	pencil	£0.55
	<b>65 p</b>	

<b>10</b>	<b>1.2</b>
-----------	------------

<b>11</b>	<b>4 p</b>
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<b>12</b>	
	Accept an answer in the range <b>40° to 50°</b> inclusive

<b>13</b>	<b>500</b>
-----------	------------

<b>14</b>	<b>1250 ml</b>
-----------	----------------

<b>15</b>	<b>12 000</b>
-----------	---------------

Time: 15 seconds

<b>16</b>	<b>71</b>
-----------	-----------

<b>17</b>	<b>60 p</b>
-----------	-------------

<b>18</b>	<b>1.15</b>	Accept equivalent fractions
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<b>19</b>	<b>3</b> ..... and ..... <b>8</b> Accept numbers in either order
-----------	---

<b>20</b>	<b>273</b>
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### Mental mathematics questions 1–20

Question	Requirement	Mark	Additional guidance
1	68	1m	
2	79	1m	
3	36	1m	
4	70%	1m	<b>Do not</b> accept 0.7 <b>OR</b> $\frac{7}{10}$ <b>OR</b> equivalent fractions.
5	500 000	1m	Words not acceptable.
6	$2^{\circ}\text{C}$ $-5^{\circ}\text{C}$ $5^{\circ}\text{C}$ $0^{\circ}\text{C}$ $-1^{\circ}\text{C}$	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 child's intention is clear.
7	50cm	1m	
8	2	1m	Accept 5 remainder 2 Accept remainder 2
9	65p	1m	
10	1.2	1m	Accept equivalent fractions.
11	4p	1m	
12	Answer in the range 40 to 50 degrees inclusive.	1m	
13	500	1m	
14	1250ml	1m	
15	12 000	1m	
16	71	1m	
17	60p	1m	
18	1.15	1m	Accept equivalent fractions.
19	3 <b>AND</b> 8	1m	Answers may be written in either order.
20	273	1m	



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