

**Ma**

KEY STAGE

**2**

LEVELS

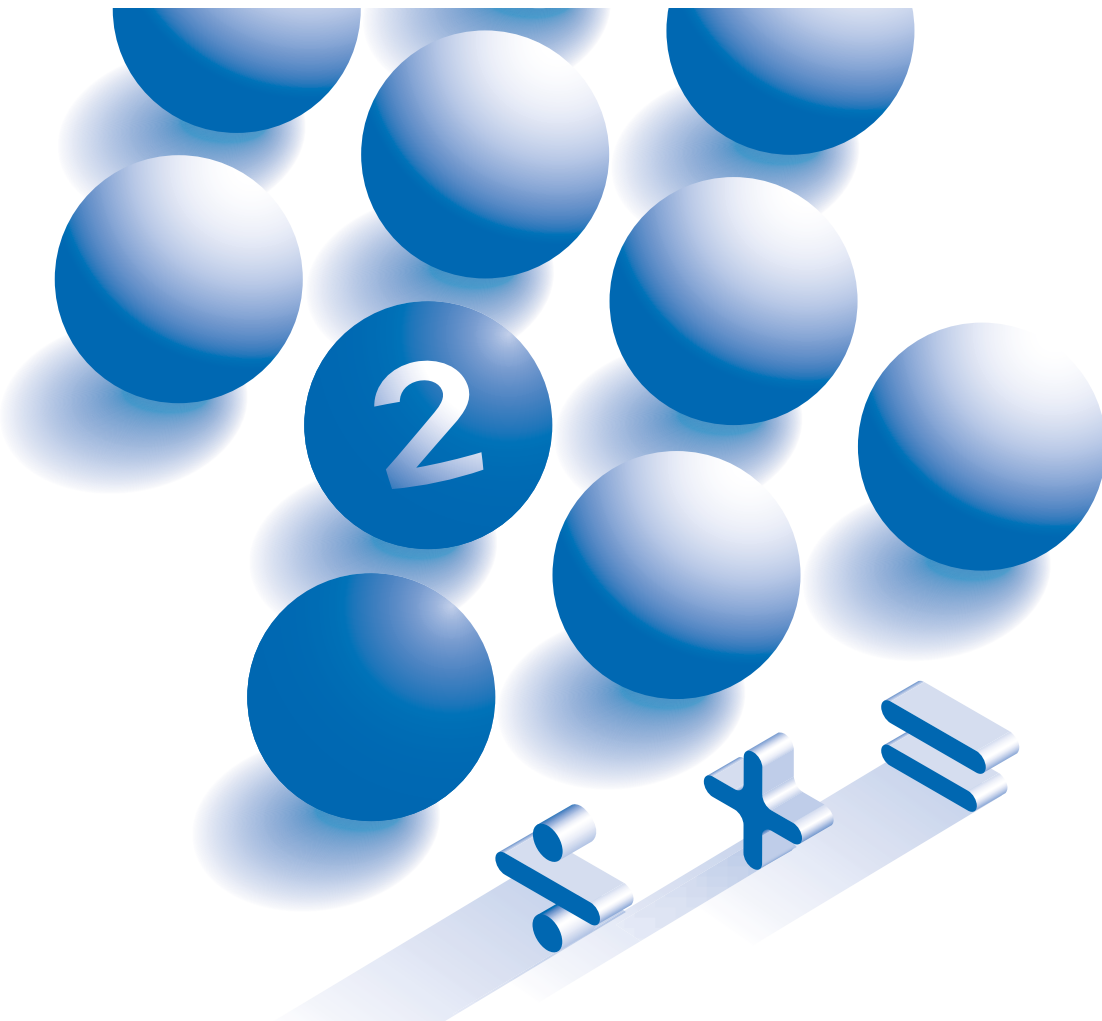
**3-5**

Mathematics tests

# Mark schemes

Test A, Test B and  
Mental mathematics

**2009**



National curriculum assessments

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# Marking the mathematics tests

As in 2008, 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 NAA website ([www.naa.org.uk/tests](http://www.naa.org.uk/tests)) on 22 June 2009.

## 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.

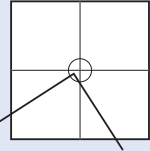
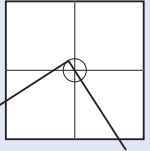
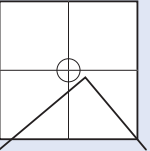
The **'additional guidance'** column indicates alternative acceptable responses, and provides details of specific types of response which are unacceptable. Other guidance, such as the range of acceptable answers, is provided as necessary.

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	
<i>The pupil's response is numerically or algebraically equivalent to the answer in the mark scheme.</i>	Markers will award the mark unless the mark scheme states otherwise.	
<i>The pupil's response does not match closely any of the examples given.</i>	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.	
<i>The pupil has responded in a non-standard way.</i>	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.	
<i>There appears to be a misreading affecting the working.</i>	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.	
<i>No answer is given in the expected place, but the correct answer is given elsewhere.</i>	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.	
<i>The response in the answer box is wrong, but the correct answer is shown in the working.</i>	<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>

What if...	Marking procedure
<i>The pupil's answer is correct but the wrong working is shown.</i>	A correct response will always be marked as correct.
<i>The correct response has been crossed out and not replaced.</i>	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.
<i>More than one answer is given.</i>	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.
<i>The answer is correct but, in a later part of the question, the pupil has contradicted this response.</i>	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.
<i>The pupil has drawn lines which do not meet at the correct point.</i>	<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.

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 2009 key stage 2 mathematics tests and mark schemes were developed by the Test Development Team at Pearson Research and Assessment on behalf of 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; 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</p> <p>£320 £320p</p> <p>Incorrect placement of decimal point, or incorrect use or omission of 0, eg</p> <p>£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</p> <p>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                    0.40p</p>

**Responses involving time**

	Accept	Do not accept
<b>A time interval</b> <i>for example:</i> 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> <i>for example:</i> 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**

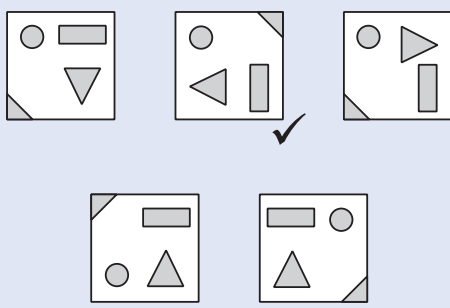
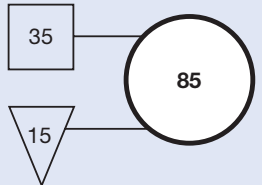
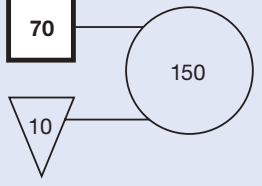
	Accept	Do not accept
<b>Where units are given</b> <i>(eg kg, m, l)</i> <i>for example:</i> 8.6kg <div style="border: 1px solid black; display: inline-block; padding: 2px 5px; margin-top: 5px;"><b>kg</b></div>	8.6kg Any unambiguous indication of the correct measurement, eg 8.60kg 8.6000kg 8kg 600g	Incorrect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

**Note**

If a 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.

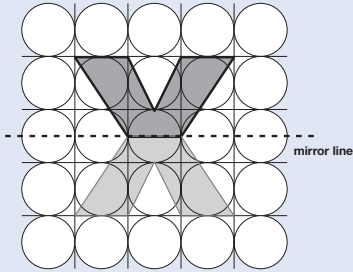
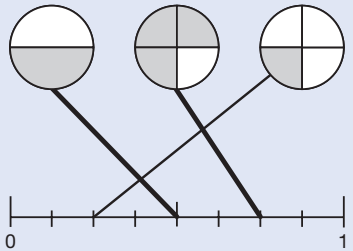
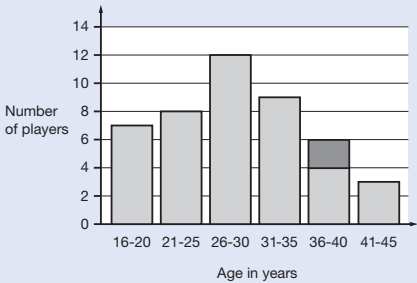
If a pupil changes the unit given in the answer box, then their answer must be equivalent to the correct answer using the unit they have chosen, unless otherwise indicated in the mark scheme.

### Test A questions 1–5

Question	Requirement	Mark	Additional guidance
1	Time circled as shown: <div style="text-align: center;">                     12:30am    12:30pm                      11:30am    <b>11:30pm</b>    3am                 </div>	1m	<b>Do not</b> award the mark if additional incorrect times are circled.  Accept alternative unambiguous indications, eg time ticked, crossed or underlined.
2	<div style="display: flex; align-items: center; gap: 10px;"> <div style="border: 1px solid black; padding: 2px 5px;">7</div> <div style="border: 1px solid black; padding: 2px 5px;">4</div> <div>+</div> <div style="border: 1px solid black; padding: 2px 5px;">2</div> <div style="border: 1px solid black; padding: 2px 5px;">6</div> </div> <p>OR</p> <div style="display: flex; align-items: center; gap: 10px;"> <div style="border: 1px solid black; padding: 2px 5px;">7</div> <div style="border: 1px solid black; padding: 2px 5px;">6</div> <div>+</div> <div style="border: 1px solid black; padding: 2px 5px;">2</div> <div style="border: 1px solid black; padding: 2px 5px;">4</div> </div>	1m	Numbers may be added in either order.
3	The correct tile ticked as shown: 	1m	Accept alternative unambiguous indications, eg tile crossed or circled.
4a	Diagrams completed as shown: 	1m	
4b		1m U1	
5a	15	1m	
5b	USA	1m	Accept unambiguous abbreviations or recognisable misspellings.



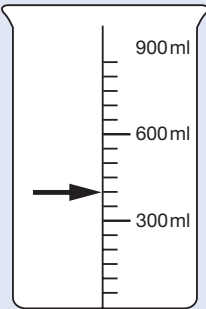
Test A questions 6–10

Question	Requirement	Mark	Additional guidance
6a	3	1m	
6b	<p>Award <b>TWO</b> marks for the correct answer of 200</p> <p>If the answer is incorrect, award <b>ONE</b> mark for evidence of appropriate working, eg:</p> <ul style="list-style-type: none"> <li>■ <math>60 + 60 = 120</math></li> <li><math>20 + 20 + 20 + 20 = 80</math></li> <li><math>120 + 80 = \text{wrong answer}</math></li> </ul> <p><b>OR</b></p> <ul style="list-style-type: none"> <li>■ <math>(60 \times 2) + (20 \times 4) = \text{wrong answer}</math></li> </ul>	Up to 2m	Working must be carried through to reach an answer for the award of <b>ONE</b> mark.
7	16	1m	
8	<p>Diagram completed as shown:</p> 	1m	<p>Accept slight inaccuracies in drawing (see page 3 for guidance).</p> <p>Shape need not be shaded.</p>
9	<p>Diagram completed 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 shapes or number line provided the intended accuracy is clear.</p>
10a	27	1m	
10b	<p>Graph completed as shown:</p> 	1m	<p>Accept slight inaccuracies in drawing provided the intention is clear.</p> <p>Bar need not be shaded.</p>

## Test A questions 11–12

Question	Requirement	Mark	Additional guidance
11a	£4.79	1m	
11b	Award <b>TWO</b> marks for the correct answer of £2.35 If the answer is incorrect, award <b>ONE</b> mark for evidence of appropriate working, eg $2.50 \div 2 = 1.25$ $1.25 + 1.40 = 2.65$ $5 - 2.65 = \text{wrong answer}$	Up to 2m	Accept for <b>ONE</b> mark £235 <b>OR</b> £235p as evidence of appropriate working. Working must be carried through to reach an answer for the award of <b>ONE</b> mark.
12	An explanation which gives a counter-example to illustrate that not all numbers ending in 4 are multiples of 4, eg: <ul style="list-style-type: none"> <li>■ '14 is not a multiple of 4'</li> <li>■ '4, 24 and 44 are multiples of 4, but not 14 and 34'</li> <li>■ '14 or 34 don't work'</li> <li>■ '54'</li> </ul> <b>OR</b> an explanation which recognises that only numbers ending in 4 which have an even number of tens are multiples of 4, eg: <ul style="list-style-type: none"> <li>■ 'It has to have an even number of 10s as well, like 20 or 40'</li> <li>■ '14, 24, 34, 44, 54, 64 – only half of them are'</li> <li>■ '4 doesn't go into 10 so 14 isn't'.</li> </ul>	1m <b>U1</b>	No mark is awarded for circling 'No' alone. <b>Do not</b> accept vague or incomplete explanations, eg: <ul style="list-style-type: none"> <li>■ 'Some numbers end in a 4 but aren't multiples of 4'</li> <li>■ '16 doesn't end in 4'</li> <li>■ 'Not all multiples of 4 end in 4'</li> <li>■ '24 is a multiple of 4 but the next one isn't'</li> <li>■ '4, 8, 12, 16, 20, 24 etc'.</li> </ul> If 'Yes' is circled but a correct, unambiguous explanation is given, then award the mark.

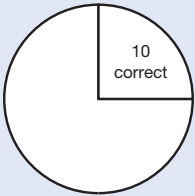
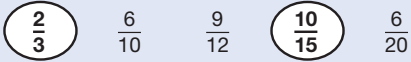
## Test A questions 13–17

Question	Requirement	Mark	Additional guidance
13a	rhombus	1m	Accept unambiguous abbreviations or recognisable misspellings.
13b	kite	1m	Accept unambiguous abbreviations or recognisable misspellings.
14	0.2 <b>0.25</b> 0.4 0.45 0.6 <b>0.75</b>	1m	<b>Do not</b> award the mark if additional incorrect numbers are circled. Accept alternative unambiguous indications, eg numbers ticked, crossed or underlined.
15	8	1m	
16a	350	1m	
16b	Arrow drawn to 400 as shown: 	1m	Arrow should be closer to 400 than to 350 or 450 for the award of the mark. Accept alternative unambiguous indications of the correct level, provided the intention is clear, eg container shaded.
17	Award <b>TWO</b> marks for the correct answer of 150 If the answer is incorrect, award <b>ONE</b> mark for evidence of appropriate working, eg $800 \div 2 = 400$ $400 - 250 = \text{wrong answer}$	Up to 2m <b>U1</b>	Working must be carried through to reach an answer for the award of <b>ONE</b> mark.

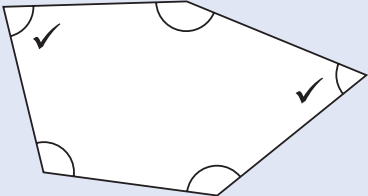
## Test A questions 18–20

Question	Requirement	Mark	Additional guidance
18	<p>Award <b>TWO</b> marks for the correct answer of 60 <b>AND</b> 90</p> <p>If the answer is incorrect, award <b>ONE</b> mark for:</p> <ul style="list-style-type: none"> <li>both numbers correct and one or more additional factors of 180</li> </ul> <p><b>OR</b></p> <ul style="list-style-type: none"> <li>both numbers correct and one number which is not a factor of 180</li> </ul> <p><b>OR</b></p> <ul style="list-style-type: none"> <li>one number correct and none incorrect.</li> </ul>	Up to 2m	<p>Numbers may be given in either order.</p> <p>eg 30, 45, <b>60, 90</b></p> <p>eg <b>60, 90</b>, 100</p> <p>eg <b>60</b></p>
19	<p>Award <b>TWO</b> marks for the correct answer of 34 314</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, eg           <math display="block">\begin{array}{r} 602 \\ \times 57 \\ \hline 30100 \\ 4214 \\ \hline \end{array}</math>           wrong answer         </li> <li>grid method, eg           <math display="block">\begin{array}{r l} &amp; 600 &amp; 2 \\ \hline 50 &amp; 30000 &amp; 100 \\ 7 &amp; 4200 &amp; 14 \\ \hline &amp; = &amp; \text{wrong answer} \end{array}</math> </li> <li>partitioning method, eg           <math display="block">\begin{array}{l} 602 \times 10 = 6020 \\ 602 \times 20 = 12040 \\ 602 \times 20 = 12040 \\ 602 \times 7 = 4214 \\ \hline \end{array}</math>           wrong answer         </li> </ul>	Up to 2m	<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 five tens, eg           <math display="block">\begin{array}{r} 602 \\ \times 57 \\ \hline 3010 \\ 4214 \\ \hline \end{array}</math>           wrong answer         </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>Working must be carried through to reach an answer for the award of <b>ONE</b> mark.</p>
20a	34	1m	
20b	70	1m	

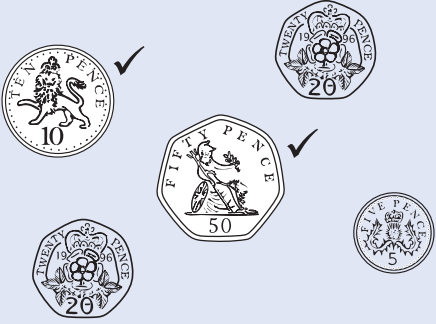
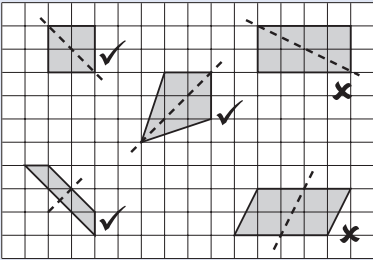
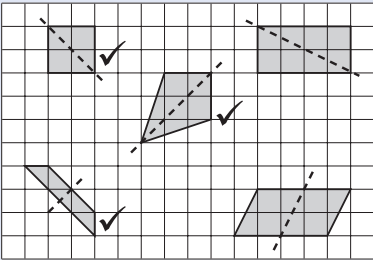
## Test A questions 21–24

Question	Requirement	Mark	Additional guidance
21a	20%	1m	<b>Do not</b> accept equivalent fractions or decimals.
21b	<p>An explanation which recognises that 25% chose Jack, eg:</p> <ul style="list-style-type: none"> <li>■ 'A quarter of the children guessed Jack and that is 10 out of 40'</li> <li>■ '10 out of 40 (<math>\frac{1}{4}</math>) were correct and the pie chart shows <math>\frac{1}{4}</math> chose Jack'</li> <li>■ 'Half guessed Amir which is 20 and Jack is half of that which is 10'</li> <li>■ '10 guessed right and the pie chart shows three times as many chose the other runners'</li> <li>■ '25% chose Jack and 25% were correct'</li> <li>■</li> </ul> 	<p>1m</p> <p>U1</p>	<p>No mark is awarded for 'Jack' alone.</p> <p><b>Do not</b> accept vague or incomplete explanations, eg:</p> <ul style="list-style-type: none"> <li>■ 'There were 40 children altogether'</li> <li>■ 'Less than half chose Jack'</li> <li>■ 'Because Jack is the fastest'.</li> </ul> <p>If the answer to 'Who won the race?' is incorrect, but a correct, unambiguous explanation is given, then award the mark.</p>
22	<p>Two fractions circled as shown:</p> 	1m	<p><b>Do not</b> award the mark if additional incorrect fractions are circled.</p> <p>Accept alternative unambiguous indications, eg fractions ticked, crossed or underlined.</p>
23a	(-10, -4)	1m	Coordinates must be written in the correct order.
23b	(0, 8)	1m	<p>Accept unambiguous answers written on the diagram.</p> <p>Award <b>ONE</b> mark if the answer to 23a is (0, 8) <b>AND</b> the answer to 23b is (-10, -4).</p>
24	<p>Award <b>TWO</b> marks for the correct answer of 20</p> <p>If the answer is incorrect, award <b>ONE</b> mark for evidence of appropriate working, eg</p> <p>Small square = <math>36 - 28 = 8</math></p> <p>Large square = <math>28 - 8</math></p> <p>= 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>

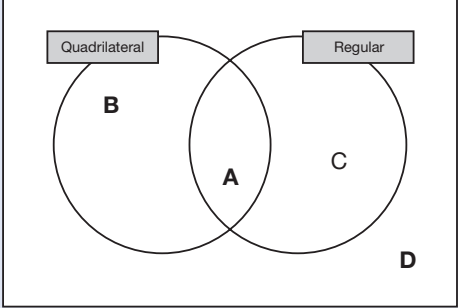
Test B questions 1–3

Question	Requirement	Mark	Additional guidance
1	<p>Award <b>TWO</b> marks for boxes ticked as shown:</p> <p><input checked="" type="checkbox"/>  <input checked="" type="checkbox"/>  <input type="checkbox"/>  <input type="checkbox"/>  <input checked="" type="checkbox"/></p> <p>If the answer is incorrect, award <b>ONE</b> mark for only one correct box ticked, ie</p> <p><input checked="" type="checkbox"/>      <input checked="" type="checkbox"/>  <input checked="" type="checkbox"/>      <input type="checkbox"/>  <input type="checkbox"/> OR <input type="checkbox"/>  <input type="checkbox"/>      <input type="checkbox"/>  <input type="checkbox"/>      <input checked="" type="checkbox"/></p> <p>OR</p> <p>one additional incorrect box ticked, ie</p> <p><input checked="" type="checkbox"/>      <input checked="" type="checkbox"/>  <input checked="" type="checkbox"/>      <input checked="" type="checkbox"/>  <input checked="" type="checkbox"/> OR <input type="checkbox"/>  <input type="checkbox"/>      <input checked="" type="checkbox"/>  <input checked="" type="checkbox"/>      <input checked="" type="checkbox"/></p>	Up to 2m	Accept alternative unambiguous indications such as <b>x</b> or <b>Y</b> .
2	<p>Award <b>TWO</b> marks for three numbers correct as shown:</p> <p><input type="text" value="500"/>  <input type="text" value="240"/>  <input type="text" value="2"/></p> <p>If the answer is incorrect, award <b>ONE</b> mark for any two numbers correct.</p>	Up to 2m	
3	<p>Two angles ticked as shown:</p> 	1m	<p><b>Do not</b> award the mark if additional incorrect angles are ticked.</p> <p>Accept alternative unambiguous indications of the correct angles, eg angles circled.</p>

### Test B questions 4–8

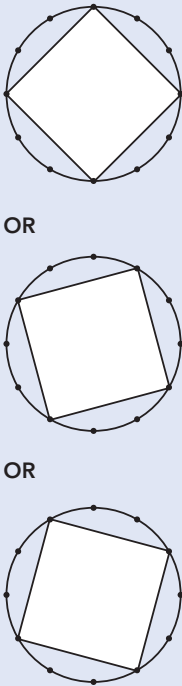
Question	Requirement	Mark	Additional guidance
4a	4	1m	
4b	23	1m	
5	Two coins ticked as shown: 	1m U1	Accept alternative unambiguous indications, eg coins listed, crossed or circled.
6	D B A C	1m U1	Accept C A B D.
7a	Lara	1m	Accept unambiguous abbreviations or recognisable misspellings.
7b	Grace	1m	Accept unambiguous abbreviations or recognisable misspellings.
8	Award <b>TWO</b> marks for shapes ticked and crossed as shown: 	Up to 2m	Accept alternative unambiguous indications such as Y or N. For <b>TWO</b> marks accept: 
	If the answer is incorrect, award <b>ONE</b> mark for four shapes ticked and crossed correctly.		

## Test B questions 9–10

Question	Requirement	Mark	Additional guidance
9	<p>Award <b>TWO</b> marks for the three letters written in the correct regions as shown:</p>  <p>If the answer is incorrect, award <b>ONE</b> mark for two letters written in the correct regions.</p>	<p><b>Up to 2m</b></p> <p>U1</p>	<p><b>Do not</b> accept letters written in more than one region.</p> <p>Accept alternative unambiguous indications, eg lines drawn from the shapes to the appropriate regions of the diagram.</p> <p>Accept unambiguous shapes drawn in the appropriate regions of the diagram.</p>
10a	7	<b>1m</b>	<p>Accept 7 r 55p.</p> <p><b>Do not</b> accept 7 r 55</p>
10b	<p>Award <b>TWO</b> marks for the correct answer of £4.11</p> <p>If the answer is incorrect, award <b>ONE</b> mark for evidence of appropriate method, eg</p> $4 \times 3.79 = 15.16$ $8.95 + 15.16 = 24.11$ $24.11 - 20$	<b>Up to 2m</b>	<p>Accept for <b>ONE</b> mark £411 <b>OR</b> £411p as evidence of appropriate method.</p> <p>Answer need not be obtained for the award of <b>ONE</b> mark.</p>



## Test B questions 11–13

Question	Requirement	Mark	Additional guidance
11a	3	1m	
11b	2 hours 5 minutes	1m	The answer is a time interval (see page 5 for guidance).
11c	18:15	1m	The answer is a specific time (see page 5 for guidance). Accept 6:15
12a	-10	1m	<b>Do not</b> accept 10-
12b	45	1m	
13	Square drawn as shown:  OR OR	1m <b>U1</b>	Accept slight inaccuracies in drawing, provided the intention is clear.

## Test B questions 14–19

Question	Requirement	Mark	Additional guidance
14	Two numbers, <div style="border: 1px solid black; display: inline-block; padding: 2px 10px;">x</div> AND <div style="border: 1px solid black; display: inline-block; padding: 2px 10px;">y</div> where $y = 10(x + 1)$ eg, <div style="border: 1px solid black; display: inline-block; padding: 2px 10px;">1</div> AND <div style="border: 1px solid black; display: inline-block; padding: 2px 10px;">20</div> OR <div style="border: 1px solid black; display: inline-block; padding: 2px 10px;">3</div> AND <div style="border: 1px solid black; display: inline-block; padding: 2px 10px;">40</div> OR <div style="border: 1px solid black; display: inline-block; padding: 2px 10px;">10</div> AND <div style="border: 1px solid black; display: inline-block; padding: 2px 10px;">110</div>	1m	The second number is ten more than ten times the first number.
15a	$\frac{3}{8}$	1m	Accept equivalent fractions or decimals.
15b	$\frac{4}{10}$ OR $\frac{2}{5}$	1m	Accept equivalent fractions or decimals.
16a	C	1m	Accept $920 \div 80$ OR 11.5
16b	B	1m	Accept $820 \div 75$ OR 10.9 OR 10.93 OR 10.933 etc.
17a	Answer in the range 7.5 minutes to 9 minutes exclusive.	1m	Accept an answer in the range 21 minutes to 22.5 minutes exclusive.
17b	Answer in the range 130m to 140m inclusive.	1m	
18	25	1m	
19	Award <b>TWO</b> marks for all three numbers, as shown: 169 AND 196 AND 225  If the answer is incorrect, award <b>ONE</b> mark for: ■ two numbers correct and none incorrect <b>OR</b> ■ three numbers correct and one incorrect.	Up to 2m <div style="border: 1px solid black; border-radius: 50%; width: 30px; height: 30px; display: flex; align-items: center; justify-content: center; margin: 5px auto;">U1</div>	Accept numbers written in any order. All three numbers and no incorrect numbers must be given for the award of <b>TWO</b> marks.  Accept for <b>TWO</b> marks: ■ $13^2$ AND $14^2$ AND $15^2$ <b>OR</b> ■ $13 \times 13$ AND $14 \times 14$ AND $15 \times 15$  Accept for <b>ONE</b> mark: 13 AND 14 AND 15

## Test B questions 20–22

Question	Requirement	Mark	Additional guidance
20a	Answer in the range 76cm to 78cm inclusive.	1m	
20b	Answer in the range 3cm to 5cm inclusive.	1m	
21	30%	1m	Do not accept equivalent fractions or decimals.
22a	40	1m	
22b	<p>Award <b>TWO</b> marks for the correct answer of 250</p> <p>If the answer is incorrect, award <b>ONE</b> mark for evidence of appropriate method, eg:</p> <p>■ <math>500 \div 2 \times 5 = 1250</math></p> <p>1250 – 1000</p> <p><b>OR</b></p> <p>■ <math>\frac{1}{2}</math> litre    2 smoothies</p> <p>1 litre    4 smoothies</p> <p><math>1\frac{1}{4}</math> litres    5 smoothies</p> <p><math>1\frac{1}{4} - 1 = \frac{1}{4}</math></p> <p><math>\frac{1}{4} \times 1000</math></p>	Up to 2m	<p>Accept for <b>ONE</b> mark an answer of <math>\frac{1}{4}</math> litre <b>OR</b> sight of <math>\frac{1}{4}</math> litre with no evidence of an incorrect method.</p> <p>Accept for <b>ONE</b> mark an answer of 1250 <b>OR</b> sight of 1250 with no evidence of an incorrect 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 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 2009

## quick reference mark scheme

### Practice question

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### Time: 5 seconds

1	180
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2	10:45
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3	54
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4	$\frac{7}{10}$	Accept equivalent fractions. Accept 70%
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5	3800 m
---	--------

### Time: 10 seconds

6	69
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7	
---	--

8	$13\frac{1}{2}$ OR 13.5
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9	-5 °C	Do not accept 5-
---	-------	------------------

10	11
----	----

11	£ 6.45
----	--------

12	70
----	----

13	0.35	Accept equivalent fractions
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14	24
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15	23 OR 29
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### Time: 15 seconds

16	401
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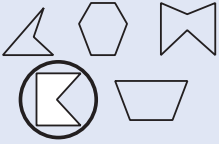
17	4.805      4.085 <b>4.85</b>	4.508      4.58
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18	210
----	-----

19	6
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20	24 p
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## Mental mathematics questions 1–20

Question	Requirement	Mark	Additional guidance
1	180	1m	
2	10:45	1m	Answer is a specific time.
3	54	1m	
4	$\frac{7}{10}$	1m	Accept equivalent fractions. Accept 70%.
5	3800m	1m	
6	69	1m	
7		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.
8	$13\frac{1}{2}$ OR 13.5	1m	
9	-5°C	1m	<b>Do not</b> accept 5-
10	11	1m	
11	£6.45	1m	
12	70	1m	
13	0.35	1m	Accept equivalent fractions, eg $\frac{35}{100}$
14	24	1m	
15	23 OR 29	1m	
16	401	1m	
17	<div style="display: flex; justify-content: space-around; align-items: center;"> <span>4.805</span> <span>4.085</span> <span style="border: 1px solid black; border-radius: 50%; padding: 2px;">4.85</span> </div> <div style="display: flex; justify-content: space-around; align-items: center; margin-top: 5px;"> <span>4.508</span> <span>4.58</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	210	1m	
19	6	1m	
20	24p	1m	





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