

**Ma**

KEY STAGE

**2**

LEVELS

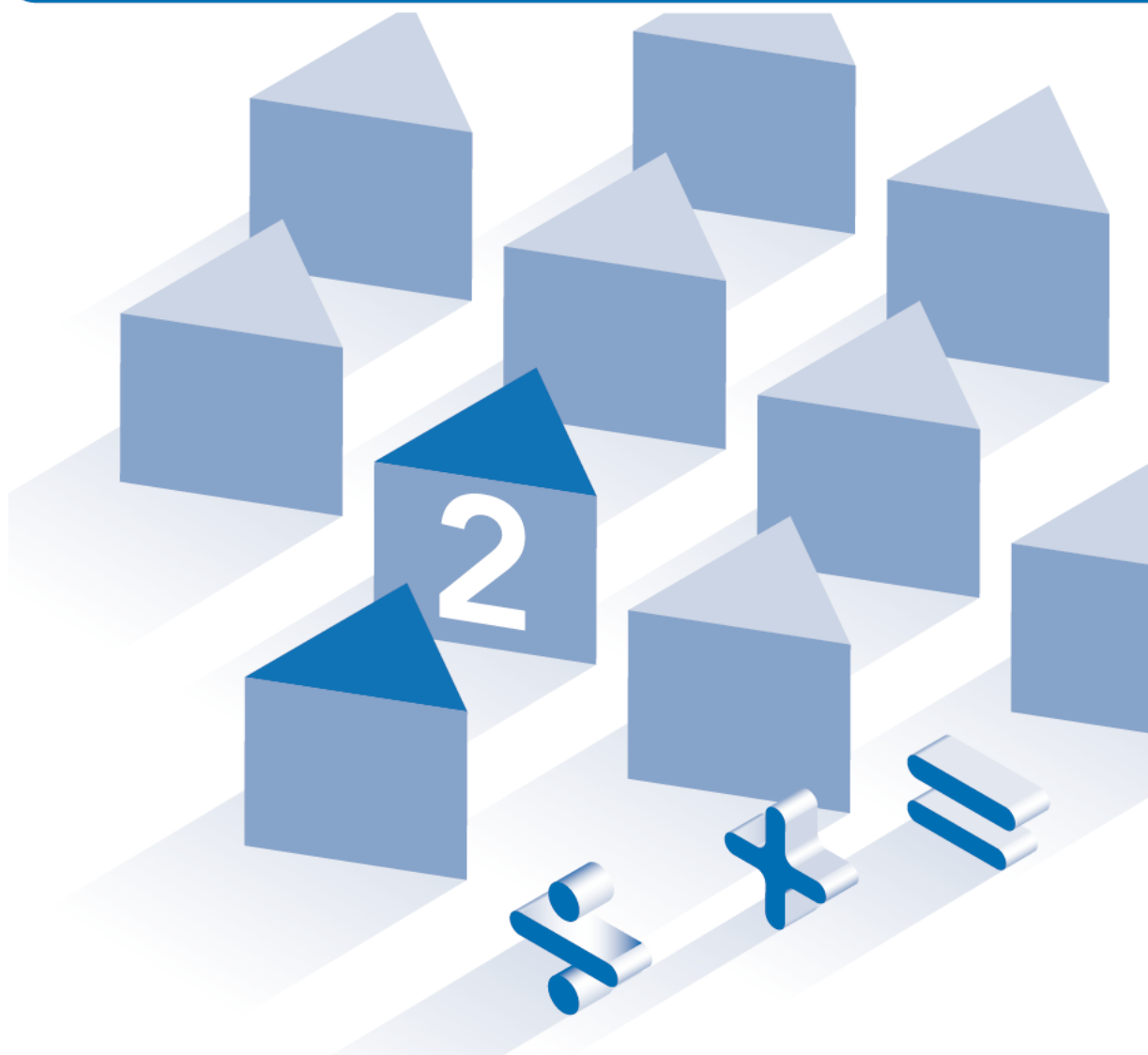
**3-5**

Mathematics tests

## Mark schemes

Test A, Test B and  
Mental mathematics

**2010**



National curriculum assessments

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# Marking the mathematics tests

As in 2009, external markers, employed by the external marking agencies under contract to QCDA, 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 QCDA website (<http://testsandexams.qcda.gov.uk/18954.aspx>) on 30 June 2010.

## 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  $\textcircled{U1}$  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.

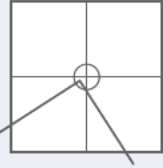
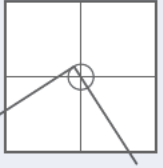
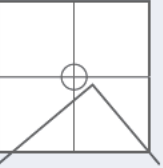
The 'additional guidance' column indicates alternative acceptable responses, and provides details of specific types of response which are unacceptable. Other guidance, such as the range of acceptable answers, is provided as necessary.

Additionally, for the mental mathematics test, general guidance on marking is given on page 17, 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 along 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 pupil's answer is correct but the wrong working is shown.</i>	A correct response will always be marked as correct.	
<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 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

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

Depending on the type of response made to each part of each question by the pupil, the external marker will record one of the following in each marking space:

- '1' for a correct response
- '0' for an incorrect response
- '-' if no response is made.

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

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

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 2010 key stage 2 mathematics tests and mark schemes were developed by the Test Development Team at Pearson Research and Assessment on behalf of QCDA.

## 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: 2px; display: inline-block; margin-top: 5px;">£</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; padding: 2px; display: inline-block; margin-top: 5px;">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; width: 40px; height: 20px; margin-top: 5px;"></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> for example: 2 hours 30 minutes	2 hours 30 minutes Any unambiguous, correct indication, eg 2½ hours 2.5 hours 2h 30 2h 30 min 2 30 150 minutes 150 Digital electronic time, ie 2:30	Incorrect or ambiguous time interval, eg 2.30 2-30 2,30 230 2.3 2.3 hours 2.3h 2h 3 2.30 min
<b>A specific time</b> for example: 8:40am, 17:20	8:40am 8:40 twenty to nine Any unambiguous, correct indication, eg 08.40 8.40 0840 8 40 8-40 8,40 Unambiguous change to 12 or 24 hour clock, eg 17:20 as 5:20pm or 17:20pm	Incorrect time, eg 8.4am 8.40pm Incorrect placement of separators, spaces, etc or incorrect use or omission of 0, eg 840 8:4:0 8.4 084

**Responses involving measures**

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

**Note**

If a 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 1–6

Question	Requirement	Mark	Additional guidance																														
1	Prices in order, as shown: <div style="display: flex; justify-content: space-around; margin-top: 5px;"> <div style="border: 1px solid black; padding: 2px 5px;">£0.27</div> <div style="border: 1px solid black; padding: 2px 5px;">72p</div> <div style="border: 1px solid black; padding: 2px 5px;">£2.07</div> <div style="border: 1px solid black; padding: 2px 5px;">£2.70</div> <div style="border: 1px solid black; padding: 2px 5px;">£7.20</div> </div>	1m	Accept use of equivalent units, eg 27p. Accept answers with missing or incorrect units.																														
2	23 AND 33	1m <span style="border: 1px solid black; border-radius: 50%; padding: 2px 5px;">U1</span>	Numbers may be given in either order.																														
3a	Cheetah	1m	Accept unambiguous abbreviations or recognisable misspellings.																														
3b	Wildcat AND Leopard	1m	Names may be given in either order. Accept unambiguous abbreviations or recognisable misspellings. <b>Do not</b> accept 'L' for Leopard.																														
4a	40p	1m																															
4b	Award <b>TWO</b> marks for the correct answer of 65p <b>OR</b> £0.65  If the answer is incorrect, award <b>ONE</b> mark for evidence of appropriate working, eg 120 + 35 = 155 155 – 90 = wrong answer	Up to 2m	Accept for <b>ONE</b> mark £65 <b>OR</b> £65p <b>OR</b> 0.65p as evidence of appropriate working. Working must be carried through to reach an answer for the award of <b>ONE</b> mark.																														
5	Times in order as shown: <div style="display: flex; justify-content: space-around; margin-top: 5px;"> <div style="border: 1px solid black; padding: 2px 5px;">48 hours</div> <div style="border: 1px solid black; padding: 2px 5px;">24 days</div> <div style="border: 1px solid black; padding: 2px 5px;">1 month</div> <div style="border: 1px solid black; padding: 2px 5px;">10 weeks</div> </div>	1m	Accept unambiguous abbreviations or recognisable misspellings. Accept use of equivalent units, eg 2 days. Accept answers with missing or incorrect units.																														
6	Award <b>TWO</b> marks for the diagram completed as shown: <div style="text-align: center; margin-top: 10px;"> <table style="border-collapse: collapse; margin: auto;"> <tr> <td style="border: 1px solid black; padding: 5px 10px;">6</td> <td style="border: 1px solid black; padding: 5px 10px;">3</td> <td style="border: 1px solid black; padding: 5px 10px;">8</td> <td style="border: 1px solid black; padding: 5px 10px;">4</td> <td style="border: 1px solid black; padding: 5px 10px;">10</td> </tr> <tr> <td style="text-align: center;">/ \</td> <td style="text-align: center;">/ \</td> <td style="text-align: center;">/ \</td> <td style="text-align: center;">/ \</td> <td></td> </tr> <tr> <td style="text-align: center;">18</td> <td style="text-align: center;">24</td> <td style="text-align: center;">32</td> <td style="text-align: center;">40</td> <td></td> </tr> </table> </div> <p>If the answer is incorrect, award <b>ONE</b> mark for two numbers correct</p> <p><b>OR</b></p> <div style="text-align: center; margin-top: 10px;"> <table style="border-collapse: collapse; margin: auto;"> <tr> <td style="border: 1px solid black; padding: 5px 10px;">6</td> <td style="border: 1px solid black; padding: 5px 10px;">3</td> <td style="border: 1px solid black; padding: 5px 10px;">8</td> <td style="border: 1px solid black; padding: 5px 10px;"><i>n</i></td> <td style="border: 1px solid black; padding: 5px 10px;">10</td> </tr> <tr> <td style="text-align: center;">/ \</td> <td style="text-align: center;">/ \</td> <td style="text-align: center;">/ \</td> <td style="text-align: center;">/ \</td> <td></td> </tr> <tr> <td style="text-align: center;">18</td> <td style="text-align: center;">24</td> <td style="text-align: center;">32</td> <td style="text-align: center;">10<i>n</i></td> <td></td> </tr> </table> </div> <p>where <i>n</i> is any number.</p>	6	3	8	4	10	/ \	/ \	/ \	/ \		18	24	32	40		6	3	8	<i>n</i>	10	/ \	/ \	/ \	/ \		18	24	32	10 <i>n</i>		Up to 2m	
6	3	8	4	10																													
/ \	/ \	/ \	/ \																														
18	24	32	40																														
6	3	8	<i>n</i>	10																													
/ \	/ \	/ \	/ \																														
18	24	32	10 <i>n</i>																														



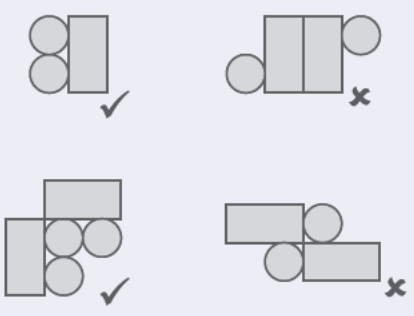
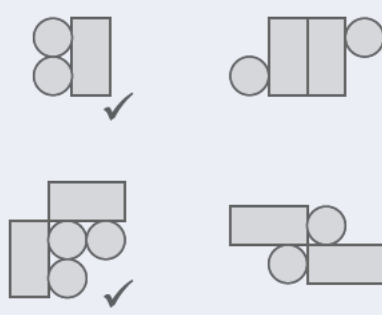
## Test A questions 7–12

Question	Requirement	Mark	Additional guidance									
7	144	1m										
8a	B AND F	1m	Letters may be given in either order.									
8b	C AND D AND G	1m	Letters may be given in any order.									
9	Jack	1m	Accept unambiguous abbreviations or recognisable misspellings.									
10	<p>Award <b>TWO</b> marks for the table completed as shown:</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th></th> <th>odd</th> <th>not odd</th> </tr> </thead> <tbody> <tr> <th>a 3-digit number</th> <td style="text-align: center;">247</td> <td style="text-align: center;">990</td> </tr> <tr> <th>not a 3-digit number</th> <td style="text-align: center;">25   49</td> <td style="text-align: center;">7002</td> </tr> </tbody> </table> <p>If the answer is incorrect, award <b>ONE</b> mark for four numbers placed correctly.</p>		odd	not odd	a 3-digit number	247	990	not a 3-digit number	25   49	7002	Up to 2m	<b>Do not</b> accept numbers written in more than one section.
	odd	not odd										
a 3-digit number	247	990										
not a 3-digit number	25   49	7002										
11	3804	1m										
12	<p>Award <b>TWO</b> marks for the correct answer of 6</p> <p>If the answer is incorrect, award <b>ONE</b> mark for evidence of appropriate working, eg</p> <p><math>2.50 \times 2 = 5</math></p> <p><math>14 - 5 = 9</math></p> <p><math>9 \div 1.50 = \text{wrong answer}</math></p> <p><b>OR</b></p> <p><math>14 - 2.50 - 2.50 = 9</math></p> <p><math>1.50 \times \text{wrong number} = 9</math></p>	Up to 2m	<p>Accept for <b>ONE</b> mark an answer of £6 as evidence of appropriate working.</p> <p>Working must be carried through to reach an answer for the award of <b>ONE</b> mark.</p>									

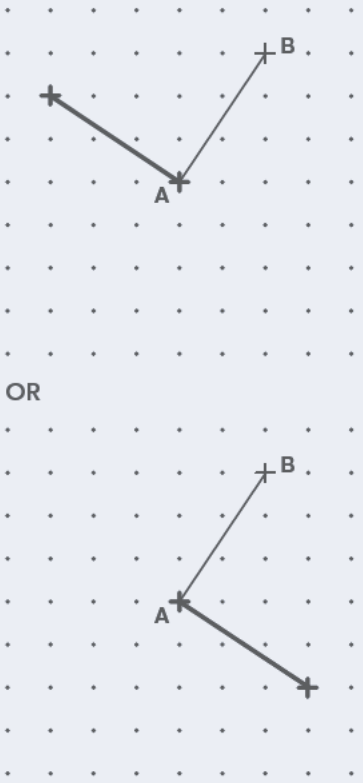
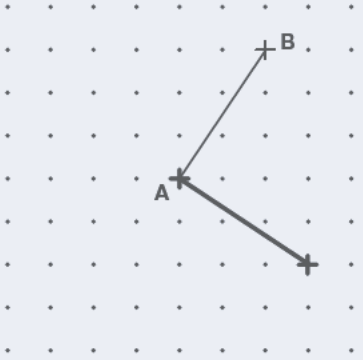
## Test A questions 13–15

Question	Requirement	Mark	Additional guidance
13a	5	1m	
13b	15	1m U1	If the answer is incorrect, award the mark if the answers to 13a and 13b total 20
14	$\left( \boxed{1\frac{1}{2}} + \boxed{3\frac{1}{2}} \right) \times \boxed{2}$ <p>OR</p> $\left( \boxed{\frac{1}{2}} + \boxed{3\frac{1}{2}} \right) \times \boxed{2\frac{1}{2}}$	1m	<p>Numbers in brackets may be given in either order.</p> <p>Accept equivalent fractions or decimals.</p> <p><b>Do not</b> accept use of the same card twice, eg</p> $\left( \boxed{2\frac{1}{2}} + \boxed{2\frac{1}{2}} \right) \times \boxed{2}$
15	<p>Award <b>TWO</b> marks for the correct answer of 30p.</p> <p>If the answer is incorrect, award <b>ONE</b> mark for evidence of appropriate working, eg</p> <p><math>10p \times 2 = 20p</math></p> <p><math>£1 - 20p = 80p</math></p> <p><math>80p \div 4 = 20p</math></p> <p><math>20p + 10p =</math> wrong answer</p> <p>OR</p> <p><math>£1 \div 2 = 50p</math></p> <p><math>50p - 10p = 40p</math></p> <p><math>40p \div 2 = 20p</math></p> <p><math>20p + 10p =</math> wrong answer</p>	<p>Up to 2m</p> <p>U1</p>	<p>Working must be carried through to reach an answer for the award of <b>ONE</b> mark.</p>

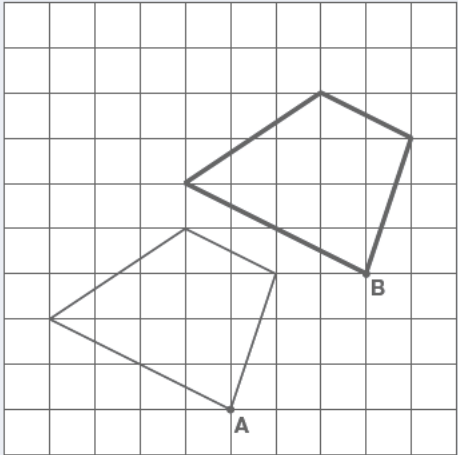
### Test A questions 16–18

Question	Requirement	Mark	Additional guidance
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>	Up to 2m	<p>Accept alternative unambiguous indications, eg <b>Y</b> or <b>N</b>.</p> <p>For <b>TWO</b> marks, accept:</p>  <p>For <b>TWO</b> marks accept lines of symmetry drawn on the correct two shapes and the other two shapes left blank.</p>
17	<p>18 + 16 + 6  <b>OR</b>                      18 + 14 + 8  <b>OR</b>                      18 + 12 + 10  <b>OR</b>                      16 + 14 + 10</p>	1m	Numbers may be given in any order.
18a	-75 in the first box	1m	Do not accept 75-
18b	-200 in the second box	1m	<p>Do not accept 200-</p> <p>Accept a number 125 less than the answer to 18a, provided the answer to 18a is negative.</p>

### Test A questions 19–21

Question	Requirement	Mark	Additional guidance
19	<p>Line drawn from <b>A</b> to one of the two dots marked as shown:</p>  <p>OR</p> 	1m	Accept slight inaccuracies in drawing (see page 3 for guidance).
20	<p>Fraction circled as shown:</p> <p><math>\frac{7}{8}</math>   <math>\frac{2}{5}</math>   <math>\frac{1}{3}</math>   <math>\frac{5}{8}</math>   <math>\frac{3}{6}</math></p>	1m	Accept alternative unambiguous indications, eg fraction ticked, crossed or underlined.
21	<p>Award <b>TWO</b> marks for the correct answer of 18</p> <p>If the answer is incorrect, award <b>ONE</b> mark for evidence of appropriate working, eg</p> <p><math>50 \div 2 = 25</math>  <math>25 - 7 =</math> wrong answer</p> <p>OR</p> <p><math>7 \times 2 = 14</math>  <math>50 - 14 = 36</math>  <math>36 \div 2 =</math> wrong answer</p>	Up to 2m	Working must be carried through to reach an answer for the award of <b>ONE</b> mark.

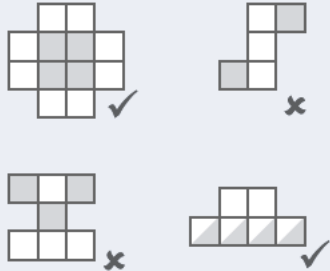
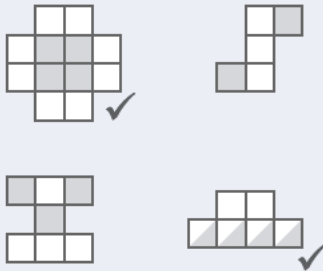
## Test A questions 22–26

Question	Requirement	Mark	Additional guidance
22a	Answer in the range $\frac{13}{100}$ to $\frac{1}{5}$ inclusive	1m	Range includes $\frac{1}{6}$ and $\frac{1}{7}$ Accept decimals or percentages. (0.13 to 0.2 inclusive) (13% to 20 % inclusive)
22b	Answer in the range 500 to 800 inclusive	1m	
23	101	1m	
24	Diagram completed as shown: 	1m	Accept slight inaccuracies in drawing (see page 3 for guidance).
25	Award <b>TWO</b> marks for the correct answer of 23 If the answer is incorrect, award <b>ONE</b> mark for evidence of appropriate working, eg $2 \times 2 = 4$ $4 + 5 = 9$ $9 \times 2 = 18$ $18 + 5 = \text{wrong answer}$	Up to 2m <b>U1</b>	Working must be carried through to reach an answer for the award of <b>ONE</b> mark.
26	An explanation which recognises that 40% of the number must be multiplied by $2\frac{1}{2}$ , or equivalent, eg: <ul style="list-style-type: none"> <li>■ 'You multiply by 2.5'</li> <li>■ 'Halve it and multiply by 5'</li> <li>■ 'Divide by 4 to get 10% and then multiply by 10'</li> <li>■ 'Divide by 40 then multiply by 100'</li> <li>■ 'If you had 100, quarter of 100 is 25, then times by 10 to get 250'</li> <li>■ 'Double it and add half of it'.</li> </ul>	1m <b>U1</b>	<b>Do not</b> accept vague or incomplete explanations, eg: <ul style="list-style-type: none"> <li>■ 'Start with the original number and find 40% of it'</li> <li>■ 'Find 10% and multiply by 10'</li> <li>■ 'Divide by 4 to find 10% and then you can find 100%'</li> <li>■ 'Find 1% and multiply by 100'</li> <li>■ 'If you had 20 it would be 50'</li> <li>■ 'Add 60%'</li> </ul>

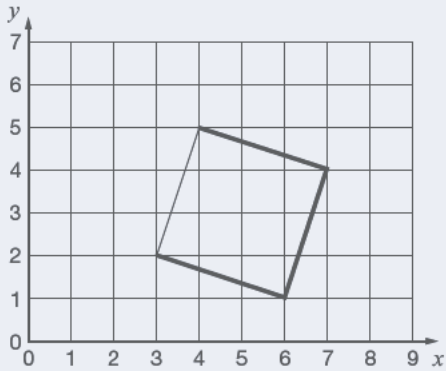
### Test B questions 1–5

Question	Requirement	Mark	Additional guidance
1	<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>	Up to 2m	<p><b>Do not</b> award any marks if two or more incorrect lines are drawn.</p> <p>Lines need not touch the boxes, provided the intention is clear.</p>
2a	150	1m	
2b	2	1m	Accept A <b>AND</b> D in either order.
3	<p>115 <b>OR</b> 151 <b>OR</b> 511  <b>OR</b>                      133 <b>OR</b> 313 <b>OR</b> 331</p>	<p>1m                      (U1)</p>	
4	<p>Diagram completed as shown:</p> <p style="text-align: center;">mirror line</p>	1m	<p>Accept slight inaccuracies in drawing (see page 3 for guidance).</p> <p>Shape need not be shaded.</p>
5a	4 hours	1m	The answer is a time interval (see page 5 for guidance).
5b	Saturday	1m	<p>Accept unambiguous abbreviations or recognisable misspellings.</p> <p>Accept '10am to 5:30pm'.</p> <p>Accept <math>7\frac{1}{2}</math> hours.</p>
5c	35 minutes	1m	The answer is a time interval (see page 5 for guidance).

Test B questions 6–11

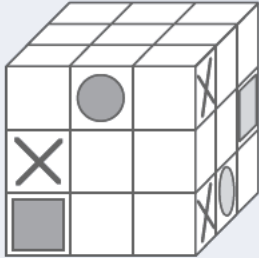
Question	Requirement	Mark	Additional guidance												
6a	5	1m													
6b	Award <b>TWO</b> marks for the correct answer of £2.85 If the answer is incorrect, award <b>ONE</b> mark for evidence of appropriate method, eg $0.55 \times 3 = 1.65$ $1.20 + 1.65$	Up to 2m	Accept for <b>ONE</b> mark £285 <b>OR</b> £285p as evidence of appropriate method. Answer need not be obtained for the award of <b>ONE</b> mark.												
7	An explanation which recognises that 5 is a quarter of 20, the total number of balloons, eg: ■ ' $\frac{1}{4}$ are red, $\frac{1}{4}$ are blue and half are yellow' ■ 'A quarter of 20 is 5' ■ '5 out of 20' ■ 'There are 20 balloons altogether and 5 are red so she is correct'.	1m U1	No mark is awarded for circling 'Yes' alone. <b>Do not</b> accept vague or incomplete explanations, eg: ■ '5 are red, 5 are blue and 10 are yellow so that is a quarter' ■ 'There are 20 altogether' ■ 'Add all the balloons up and divide by 4' If 'No' is circled but a correct, unambiguous explanation is given, then award the mark.												
8	Three multiples of 3, eg: <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td>3</td><td>6</td></tr></table> <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td>2</td><td>4</td></tr></table> <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td>5</td><td>7</td></tr></table> OR <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td>6</td><td>3</td></tr></table> <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td>7</td><td>2</td></tr></table> <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td>5</td><td>4</td></tr></table>	3	6	2	4	5	7	6	3	7	2	5	4	1m U1	Multiples may be given in any order. Digits may be in either order, eg 24 <b>OR</b> 42 <b>Do not</b> accept digits used more than once. <b>Do not</b> accept digits other than those shown.
3	6														
2	4														
5	7														
6	3														
7	2														
5	4														
9a	3	1m	<b>Do not</b> accept a list of years.												
9b	2004 <b>AND</b> 2007 <b>AND</b> 2008	1m U1	Years may be given in any order.												
10	325	1m													
11	Award <b>TWO</b> marks for diagrams ticked or crossed as shown:  If the answer is incorrect, award <b>ONE</b> mark for three diagrams ticked or crossed correctly.	Up to 2m	Accept alternative unambiguous indications, eg Y or N. For <b>TWO</b> marks, accept: 												

## Test B questions 12–16

Question	Requirement	Mark	Additional guidance
12	$\begin{array}{ c c } \hline 6 & 2 \\ \hline \end{array} \times \begin{array}{ c c } \hline 8 & 4 \\ \hline \end{array}$ OR $\begin{array}{ c c } \hline 6 & 4 \\ \hline \end{array} \times \begin{array}{ c c } \hline 8 & 2 \\ \hline \end{array}$	1m	Numbers may be given in either order.
13	Award <b>TWO</b> marks for the correct answer of 99 If the answer is incorrect, award <b>ONE</b> mark for evidence of appropriate method, eg $36 - 25 = 11$ $11 \times 9$ OR $(36 - 25) \times 9$	Up to 2m	Answer need not be obtained for the award of <b>ONE</b> mark.
14	Diagram completed as shown: 	1m	Accept slight inaccuracies in drawing (see page 3 for guidance).
15a	16	1m	
15b	46p	1m	
16a	C AND D	1m	Letters may be given in either order.
16b	A AND D	1m	Letters may be given in either order.



### Test B questions 17–21

Question	Requirement	Mark	Additional guidance
17a	Answer in the range of 8:40pm to 8:50pm inclusive	1m	The answer is a specific time (see page 5 for guidance).
17b	3	1m	Do not accept -3
18	<p>Award <b>TWO</b> marks for the correct answer of 45</p> <p>If the answer is incorrect, award <b>ONE</b> mark for evidence of appropriate method, eg:</p> <p>■ <math>70 \div 2 = 35</math> <math>80 - 35</math></p> <p>OR</p> <p>■ <math>80 - 70 = 10</math> <math>70 \div 2 = 35</math> <math>35 + 10</math></p> <p>OR</p> <p>■ <math>80 + 80 = 160</math> <math>160 - 70 = 90</math> <math>90 \div 2</math></p> <p>OR</p> <p>■ <math>80 + 80 + 70 = 230</math> <math>230 \div 2 = 115</math> <math>115 - 70</math></p>	<p>Up to 2m</p> <p>U1</p>	<p>Answer need not be obtained for the award of <b>ONE</b> mark.</p> <p><i>Sarah and Amy must weigh the same ...</i></p> <p><i>Liam must weigh 10kg more than Sarah ...</i></p> <p><i>Add the bottom two rows and subtract the top ...</i></p> <p><i>Add all three rows and halve the total ...</i></p>
19	<p>Award <b>TWO</b> marks for the diagram completed as shown:</p>  <p>If the answer is incorrect, award <b>ONE</b> mark for two shapes correct and no more than one incorrect.</p>	Up to 2m	<p>Accept slight inaccuracies in drawing provided the intention is clear.</p> <p>Circle and square need not be shaded.</p>
20	126	1m	
21	<p>Measurements circled as shown:</p> <p>4 centimetres    4 inches</p> <p>10 kilometres    10 miles</p> <p>2 litres    2 pints</p> <p>5 grams    5 pounds</p>	1m	Accept alternative unambiguous indications, eg measurements ticked, crossed or underlined.

## Test B questions 22–24

Question	Requirement	Mark	Additional guidance																				
22	<p>Award <b>TWO</b> marks for three rows ticked correctly as shown:</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th></th> <th>less than 1000</th> <th>equal to 1000</th> <th>more than 1000</th> </tr> </thead> <tbody> <tr> <td><math>5 \times 15 \times 25</math></td> <td></td> <td></td> <td style="text-align: center;">✓</td> </tr> <tr> <td><math>16 \times (80.3 - 17.8)</math></td> <td></td> <td style="text-align: center;">✓</td> <td></td> </tr> <tr> <td><math>3888 \div (4.32 - 0.57)</math></td> <td></td> <td></td> <td style="text-align: center;">✓</td> </tr> <tr> <td><math>(32 - 5.7) \times (32 + 5.7)</math></td> <td style="text-align: center;">✓</td> <td></td> <td></td> </tr> </tbody> </table> <p>If the answer is incorrect, award <b>ONE</b> mark for two rows ticked correctly.</p>		less than 1000	equal to 1000	more than 1000	$5 \times 15 \times 25$			✓	$16 \times (80.3 - 17.8)$		✓		$3888 \div (4.32 - 0.57)$			✓	$(32 - 5.7) \times (32 + 5.7)$	✓			Up to 2m	Accept alternative unambiguous indications, eg * or Y.
	less than 1000	equal to 1000	more than 1000																				
$5 \times 15 \times 25$			✓																				
$16 \times (80.3 - 17.8)$		✓																					
$3888 \div (4.32 - 0.57)$			✓																				
$(32 - 5.7) \times (32 + 5.7)$	✓																						
23	<p>Award <b>TWO</b> marks for all three expressions correct, eg</p> <p><math>k - 2</math></p> <p><math>2k + 3</math></p> <p><math>6 + \frac{1}{2}k</math></p> <p>If the answer is incorrect, award <b>ONE</b> mark for two expressions correct.</p>	Up to 2m	<p>Accept equivalent or unconventional notation, eg</p> <p><math>k + k + 3</math> OR <math>3 + 2 \times k</math></p> <p><math>\frac{k}{2} + 6</math> OR <math>6 + k \div 2</math></p>																				
24	<p>An explanation which correctly compares the contents of the two bags, eg:</p> <ul style="list-style-type: none"> <li>■ 'In bag A half of the marbles are blue, but in bag B more are red than blue'</li> <li>■ 'In A it's fifty-fifty, but in B red is more likely'</li> <li>■ 'Less than half of the marbles in B are blue, but in A half are blue'.</li> </ul>	<p>1m</p> <p style="text-align: center;">(U1)</p>	<p>No mark is awarded for circling 'A' alone.</p> <p><b>Do not</b> accept vague or incomplete explanations, eg:</p> <ul style="list-style-type: none"> <li>■ 'A is more likely even though there are more blues in B'</li> <li>■ 'A has an even chance'.</li> </ul> <p>If 'B' is circled but a correct, unambiguous explanation is given, then award the 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 19. In addition, a 'quick reference' mark scheme is provided on page 18. 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 2010 quick reference mark scheme

## Practice question

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### Time: 5 seconds

1	41
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2	300
---	-----

3	0.1	Do not accept fractions or percentages
---	-----	--

4	9
---	---

5	7500
---	------

### Time: 10 seconds

6	20
---	----

7	775
---	-----

8	$8\frac{1}{2}$	Accept equivalent fractions or decimals
---	----------------	---

9	50 g
---	------

10	6.4
----	-----

11	20
----	----

12	£ 5.40	Do not accept £5.4
----	--------	--------------------

13	$\frac{5}{7}$ OR $\frac{20}{28}$ OR any equivalent fraction
----	---

14	34 °
----	------

15	10 cm
----	-------

### Time: 15 seconds

16	92
----	----

17	0.36    3.6 36 <b>360</b> 3600
----	--------------------------------------

18	9 hours
----	---------

19	Any multiple of 20 greater than 100, eg 120 OR 200
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20	252
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## Mental mathematics questions 1–20

Question	Requirement	Mark	Additional guidance
1	41	1m	
2	300	1m	
3	0.1	1m	Do not accept fractions or percentages.
4	9	1m	
5	7500	1m	
6	20	1m	
7	775	1m	
8	$8\frac{1}{2}$	1m	Accept equivalent fractions or decimals.
9	50g	1m	
10	6.4	1m	
11	20	1m	
12	£5.40	1m	Do not accept £5.4
13	$\frac{5}{7}$ OR $\frac{20}{28}$ OR any equivalent fraction	1m	
14	$34^\circ$	1m	
15	10cm	1m	
16	92	1m	
17	<div style="display: flex; flex-direction: column; align-items: center;"> <div style="display: flex; justify-content: space-around; width: 100%;"> <span>0.36</span> <span>3.6</span> </div> <div style="display: flex; justify-content: space-around; width: 100%;"> <span>36</span> <span style="border: 1px solid black; border-radius: 50%; padding: 2px;">360</span> </div> <div style="text-align: center; margin-top: 10px;">3600</div> </div>	1m	Accept alternative unambiguous indications, eg underlining. Do not accept if more than one answer is indicated unless the intention is clear.
18	9 hours	1m	
19	Any multiple of 20 greater than 100, eg 120 OR 200	1m	
20	252	1m	







**Qualifications and Curriculum  
Development Agency**

83 Piccadilly, London W1J 8QA

Telephone 0300 303 3013

Textphone 0300 303 3012

Fax 0300 303 3014

Email [assessments@qcda.gov.uk](mailto:assessments@qcda.gov.uk)

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