

**Ma**

KEY STAGE

**2**

LEVELS

**3-5**

Mathematics tests

**Mark schemes**Test A, Test B and  
Mental mathematics**2008**

National curriculum assessments

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# Marking the mathematics tests

As in 2007, 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 23 June 2008.

## 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.

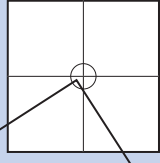
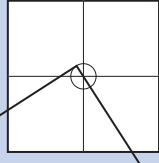
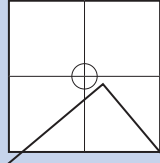
The ‘additional guidance’ column indicates alternative acceptable responses, and provides details of specific types of response which are unacceptable. Other guidance, such as the range of acceptable answers, is provided as necessary.

Additionally, for the mental mathematics test, general guidance on marking is given on page 19, together with a ‘quick reference’ mark scheme.

### *Applying the mark schemes*

In order to ensure consistency of marking, the most frequent procedural queries are listed on pages 2 and 3 with the action the marker will take. This is followed by further guidance on pages 4 and 5 relating to the marking of questions that involve money, time and other measures. Unless otherwise specified in the mark scheme, markers will apply the following guidelines in all cases.

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

What if ...	Marking procedure
The pupil's answer is correct but the wrong working is shown.	A correct response will always be marked as correct.
The correct response has been crossed out and not replaced.	Any legible crossed-out work that has not been replaced will be marked according to the mark scheme. If the work is replaced, then crossed-out work will not be considered.
More than one answer is given.	If all answers are correct (or a range of answers is given, all of which are correct), the mark will be awarded unless prohibited by the mark scheme. If both correct and incorrect responses are given, no mark will be awarded.
The answer is correct but, in a later part of the question, the pupil has contradicted this response.	A mark given for one part will not be disallowed for working or answers given in a different part, unless the mark scheme specifically states otherwise.
The pupil has drawn lines which do not meet at the correct point.	<p>Markers will interpret the phrase 'slight inaccuracies in drawing' to mean 'within or on a circle of radius 2mm with centre at the correct point'.</p> <div style="display: flex; justify-content: space-around; align-items: flex-end;"> <div style="text-align: center;">  <p>within the circle accepted</p> </div> <div style="text-align: center;">  <p>on the circle accepted</p> </div> <div style="text-align: center;">  <p>outside the circle <b>not</b> accepted</p> </div> </div>

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

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

A two-mark question which is correct will have '1' entered in both marking spaces. A two-mark question which is incorrect, but which has sufficient evidence of working or method as required by the mark scheme, will have '1' entered in the first marking space and '0' in the second. Otherwise '0' will be entered in both marking spaces.

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

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 2008 key stage 2 mathematics tests and mark schemes were developed by the Test Development Team at Edexcel 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 £320 £320p</p> <p>Incorrect placement of decimal point, or incorrect use or omission of 0, eg £3.2 £3 200 £32 0 £3-2-0</p>
<p><b>Where the p sign is given</b></p> <p>for example: 40p</p> <div style="border: 1px solid black; display: inline-block; padding: 2px 10px;">p</div>	<p>40p</p> <p>Any unambiguous indication of the correct amount, eg £0.40p</p>	<p>Incorrect or ambiguous use of pounds or pence, eg 0.40p £40p</p>
<p><b>Where no sign is given</b></p> <p>for example: £3.20, 40p</p> <div style="border: 1px solid black; display: inline-block; width: 100px; 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
<p><b>A time interval</b></p> <p>for example: 2 hours 30 minutes</p>	<p>2 hours 30 minutes</p> <p>Any unambiguous, correct indication, eg</p> <p>2½ hours</p> <p>2.5 hours</p> <p>2h 30</p> <p>2h 30 min</p> <p>2 30</p> <p>150 minutes</p> <p>150</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>230</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

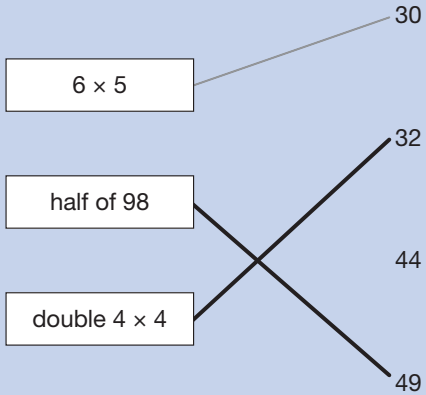
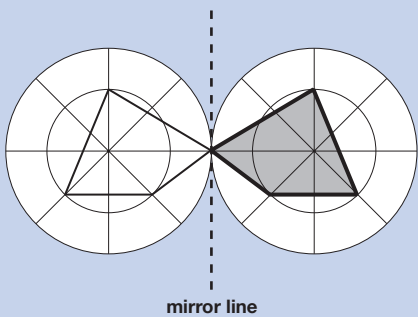
	Accept	Do not accept
<p><b>Where units are given</b> (eg kg, m, l)</p> <p>for example: 8.6kg</p> <div style="border: 1px solid black; display: inline-block; padding: 2px 10px; margin-top: 10px;">kg</div>	<p>8.6kg</p> <p>Any unambiguous indication of the correct measurement, eg</p> <p>8.60kg</p> <p>8.6000kg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

#### Note

If a 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.

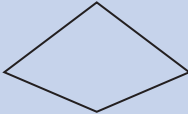
If a pupil changes the unit given in the answer box, then their answer must be equivalent to the correct answer using the unit they have chosen, unless otherwise indicated in the mark scheme.

## Test A questions 1–4

Question	Requirement	Mark	Additional guidance
1	Times written in correct order as shown: <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid black; padding: 2px 5px;">20 sec</div> <div style="border: 1px solid black; padding: 2px 5px;">1 min</div> <div style="border: 1px solid black; padding: 2px 5px;">100 sec</div> <div style="border: 1px solid black; padding: 2px 5px;">5 min</div> </div>	1m	<p><b>Do not</b> accept times written in reverse order.</p> <p>Accept answers with missing or incorrect units.</p>
2	Two lines drawn as shown: 	1m	<p><b>Do not</b> award the mark if additional incorrect lines are drawn.</p> <p>Lines need not touch the boxes or numbers, provided the intention is clear.</p>
3	421	1m	
4	Diagram completed as shown: 	1m	<p>Accept slight inaccuracies in drawing (see page 3 for guidance).</p> <p>Shape need not be shaded.</p>



## Test A questions 5–9

Question	Requirement	Mark	Additional guidance
5a	£50	1m	
5b	£275	1m	
5c	£900	1m	
6a	650 in first box.	1m	
6b	1025 in second box.	1m	
7	<p>An explanation which recognises that a quadrilateral must have particular properties to be a square, eg:</p> <ul style="list-style-type: none"> <li>■ 'It can only be a square if all the angles are right angles'</li> <li>■ 'It can only be a square if all the sides are equal'</li> </ul> <p><b>OR</b></p> <p>an explanation (or diagram) which recognises that there are quadrilaterals other than squares, eg:</p> <ul style="list-style-type: none"> <li>■ 'It could be a rectangle'</li> <li>■ 'A rhombus has four sides'</li> <li>■ 'It could be a kite or a trapezium or a parallelogram'</li> <li>■ 'It could be an oblong'</li> <li>■ 'The sides could be unequal'</li> <li>■ 'The angles might be different'</li> <li>■ </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 incomplete explanations, eg:</p> <ul style="list-style-type: none"> <li>■ 'It might not be a square'</li> <li>■ 'Not all four-sided shapes are squares'</li> <li>■ 'A four-sided shape is a quadrilateral'</li> <li>■ 'It could be a diamond'.</li> </ul> <p>If 'Yes' is circled but a correct, unambiguous explanation is given, then award the mark.</p>
8a	32	1m	
8b	11	1m	
8c	40	1m	
9a	19	1m	
9b	8	<p>1m</p> <p>U1</p>	

## Test A questions 10–17

Question	Requirement	Mark	Additional guidance																														
10a	<table border="1"> <tr><td>71</td><td>72</td><td>73</td><td>74</td><td>75</td><td>76</td><td>77</td><td>78</td><td>79</td><td>80</td></tr> <tr><td>81</td><td>82</td><td>83</td><td>84</td><td>85</td><td>86</td><td>87</td><td>88</td><td>89</td><td>90</td></tr> <tr><td>91</td><td>92</td><td>93</td><td>94</td><td>95</td><td>96</td><td>97</td><td>98</td><td>99</td><td>100</td></tr> </table>	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	1m	<p><b>Do not</b> award the mark if more than one number is circled.</p> <p>Accept alternative unambiguous indications, eg numbers ticked, crossed or underlined.</p>
71	72	73	74	75	76	77	78	79	80																								
81	82	83	84	85	86	87	88	89	90																								
91	92	93	94	95	96	97	98	99	100																								
10b	<table border="1"> <tr><td>71</td><td>72</td><td>73</td><td>74</td><td>75</td><td>76</td><td>77</td><td>78</td><td>79</td><td>80</td></tr> <tr><td>81</td><td>82</td><td>83</td><td>84</td><td>85</td><td>86</td><td>87</td><td>88</td><td>89</td><td>90</td></tr> <tr><td>91</td><td>92</td><td>93</td><td>94</td><td>95</td><td>96</td><td>97</td><td>98</td><td>99</td><td>100</td></tr> </table>	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	1m	
71	72	73	74	75	76	77	78	79	80																								
81	82	83	84	85	86	87	88	89	90																								
91	92	93	94	95	96	97	98	99	100																								
11a	<p>Award <b>TWO</b> marks for the correct answer of £7.55</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>7.95 + 4.50 = 12.45</math> <math>20 - 12.45 =</math> wrong answer</li> </ul> <p><b>OR</b></p> <ul style="list-style-type: none"> <li>■ <math>20 - 7.95 - 4.50 =</math> wrong answer</li> </ul>	Up to 2m	<p>Accept for <b>ONE</b> mark £755 <b>OR</b> £755p 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>																														
11b	£22.40	1m																															
12	D AND E	1m U1	<p>Letters may be written in either order.</p> <p>Accept A <b>AND</b> A.</p> <p>Accept C <b>AND</b> C.</p>																														
13	52	1m																															
14	19.42	1m																															
15a	1 hour 25 minutes	1m	The answer is a time interval (see page 5 for guidance).																														
15b	12:10pm	1m	The answer is a specific time (see page 5 for guidance).																														
16	271.8	1m																															
17	4	1m U1																															

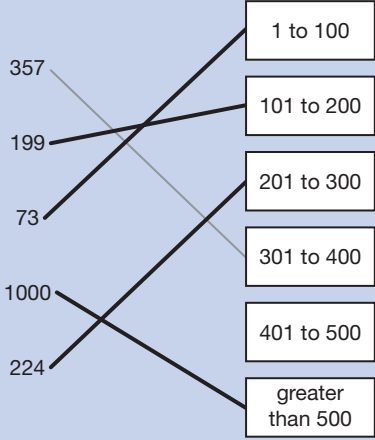
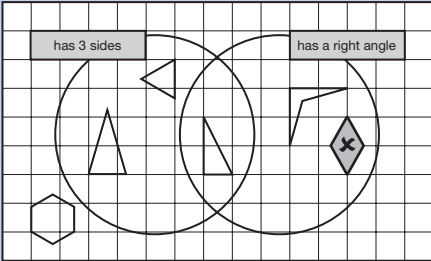
## Test A questions 18–21

Question	Requirement	Mark	Additional guidance
<b>18a</b>	5	<b>1m</b>	Accept any answer that is 270 greater than a multiple of 360  If the answer for 18a is 7 <b>AND</b> the answer for 18b is 90, award <b>ONE</b> mark only for 18b.
<b>18b</b>	270	<b>1m</b>	
<b>19a</b>	$\frac{1}{3}$	<b>1m</b>	Accept equivalent fractions or decimals.
<b>19b</b>	$\frac{1}{9}$	<b>1m</b> <b>U1</b>	Accept equivalent fractions or decimals.
<b>20a</b>	25 000	<b>1m</b>	Accept answers in the range 24 500 to 25 500 inclusive.
<b>20b</b>	1996 <b>OR</b> 1997 <b>OR</b> 1998	<b>1m</b>	
<b>20c</b>	1963 <b>OR</b> 1964	<b>1m</b>	
<b>21</b>	<p>Award <b>TWO</b> marks for the correct answer of 80</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 \div 3 \times 4 =</math> wrong answer</li> </ul> <p><b>OR</b></p> <ul style="list-style-type: none"> <li>■ <math>40 + 20 = 60</math> <math>40 \times 2 =</math> wrong answer</li> </ul> <p><b>OR</b></p> <ul style="list-style-type: none"> <li>■ a 'trial and improvement' method, eg  <math>(\frac{1}{2} \times 60) + (\frac{1}{4} \times 60) = 45</math>  <math>(\frac{1}{2} \times 120) + (\frac{1}{4} \times 120) = 90</math>  <math>(\frac{1}{2} \times 100) + (\frac{1}{4} \times 100) = 75</math></li> </ul> <p><b>OR</b></p> <ul style="list-style-type: none"> <li>■ <math>\frac{1}{2}x + \frac{1}{4}x = 60</math>  <math>\frac{3}{4}x = 60</math>  <math>x =</math> wrong answer</li> </ul>	<b>Up to 2m</b> <b>U1</b>	<p>Working must be carried through to reach an answer for the award of <b>ONE</b> mark.</p> <p>A 'trial and improvement' method must show evidence of improvement, but a final answer need not be reached for the award of <b>ONE</b> mark.</p>

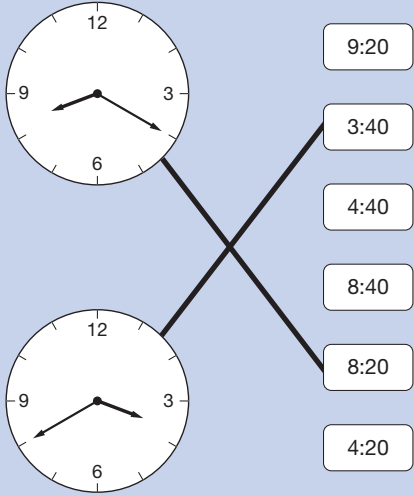
## Test A questions 22–24

Question	Requirement	Mark	Additional guidance
22	250	1m	<b>Do not</b> accept $\frac{1}{4}$ litre.
23	<p>'No' is circled <b>AND</b> one of the following:</p> <p>an explanation which recognises that 777 is not one more than a multiple of 7, eg:</p> <ul style="list-style-type: none"> <li>'All the numbers are one more than a multiple of 7'</li> <li>'There are no multiples of 7 in the sequence'</li> <li>'778 is in the sequence'</li> <li>'771 works but 777 doesn't'</li> </ul> <p><b>OR</b></p> <p>an explanation which recognises that 777 is a multiple of 7, eg:</p> <ul style="list-style-type: none"> <li>'777 is a multiple of 7'</li> <li>'777 <math>\div</math> 7 = 111'</li> </ul> <p><b>OR</b></p> <p>an explanation which relies solely on the start of the sequence, eg:</p> <ul style="list-style-type: none"> <li>'The sequence started at 1'</li> <li>'The sequence doesn't start at 0'.</li> </ul>	1m U1	<p>'No' must be indicated for the award of the mark, unless a <b>complete</b> and correct explanation is given, eg:</p> <ul style="list-style-type: none"> <li>'777 is a multiple of 7, and the numbers in the sequence aren't'.</li> </ul> <p>No mark is awarded for circling 'No' alone.</p> <p><b>Do not</b> accept vague or incomplete explanations, eg:</p> <ul style="list-style-type: none"> <li>'It's adding 7 every time'</li> <li>'There are no 7s in the sequence'.</li> </ul>
24	<p>Award <b>TWO</b> marks for the correct answer of 150</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>15 + 25 = 40 100 - 40 = 60 10% of 250 = 25 25 <math>\times</math> 6 = wrong answer</li> </ul> <p><b>OR</b></p> <ul style="list-style-type: none"> <li>100% - 40% = 60% 60% of 250 = wrong answer</li> </ul> <p><b>OR</b></p> <ul style="list-style-type: none"> <li>15% of 250 = <math>37\frac{1}{2}</math> 25% of 250 = <math>62\frac{1}{2}</math> 250 - <math>37\frac{1}{2}</math> - <math>62\frac{1}{2}</math> = wrong answer</li> </ul>	Up to 2m	Working must be carried through to reach an answer for the award of <b>ONE</b> mark.

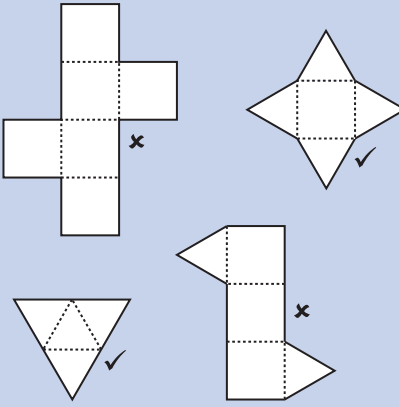
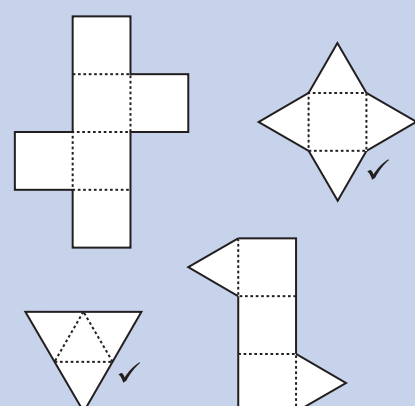
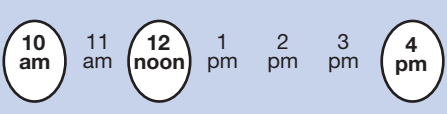
## Test B questions 1–2

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>Lines need not touch the boxes provided the intention is clear.</p>
<p><b>2</b></p>	<p>One shape crossed as shown:</p> 	<p><b>1m</b></p>	<p><b>Do not</b> award the mark if additional incorrect shapes are indicated.</p> <p>Accept alternative unambiguous indications of the correct shape, eg shape ticked or circled.</p>

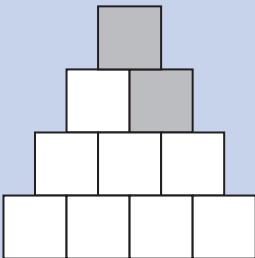
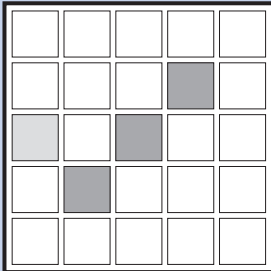
## Test B questions 3–4

Question	Requirement	Mark	Additional guidance
<p><b>3a</b></p> <p><b>3b</b></p>	 <p>9:20</p> <p>3:40</p> <p>4:40</p> <p>8:40</p> <p>8:20</p> <p>4:20</p>	<p><b>1m</b></p> <p><b>1m</b></p>	<p><b>Do not</b> award the mark if additional incorrect lines are drawn.</p> <p>Lines need not touch the clocks or times, provided the intention is clear.</p>
<p><b>4</b></p>	<p>Award <b>TWO</b> marks for the correct answer of £2.91</p> <p>If the answer is incorrect, award <b>ONE</b> mark for evidence of appropriate method, eg:</p> <ul style="list-style-type: none"> <li>■ <math>39p \times 3 = \text{£}1.17</math>  <math>29p \times 6 = \text{£}1.74</math>  <math>\text{£}1.17 + \text{£}1.74</math></li> </ul> <p><b>OR</b></p> <ul style="list-style-type: none"> <li>■ <math>40p \times 3 = \text{£}1.20</math>  <math>30p \times 6 = \text{£}1.80</math>  <math>\text{£}1.20 + \text{£}1.80 - 9p</math></li> </ul>	<p><b>Up to 2m</b></p>	<p>Accept for <b>ONE</b> mark <math>\text{£}291</math> <b>OR</b> <math>\text{£}291p</math> as evidence of appropriate method.</p> <p>Answer need not be obtained for the award of <b>ONE</b> mark.</p>

## Test B questions 5–8

Question	Requirement	Mark	Additional guidance
5	<p>Nets ticked and crossed as shown:</p> 	1m	<p>Accept alternative unambiguous indications of the correct nets, eg nets circled or crossed out.</p> <p>Accept:</p> 
6a	30	1m	
6b	<p>Three times circled as shown:</p> 	1m	<p><b>Do not</b> award the mark if additional incorrect times are circled.</p> <p>Accept alternative unambiguous indications, eg times ticked, crossed or underlined.</p>
7a	£3.05	1m	
7b	£3.50	1m	<b>Do not</b> accept £3.5
8	<p>An explanation which recognises that half of an even number is sometimes an even number, eg:</p> <ul style="list-style-type: none"> <li>■ 'Every alternate even number gives an even number when halved'</li> <li>■ 'Two even numbers make an even number'</li> <li>■ 'Half of a multiple of 4 will always be even'</li> <li>■ 'Sometimes you get an even number'</li> </ul> <p><b>OR</b></p> <p>a counter-example demonstrating that half of an even number can be an even number, eg:</p> <ul style="list-style-type: none"> <li>■ 'Half of 8 is 4'</li> <li>■ '4 ÷ 2 = 2'</li> <li>■ 'Double 10 is 20'</li> <li>■ 'Half 12 is 6 but half 6 is 3'.</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 incomplete explanations, eg:</p> <ul style="list-style-type: none"> <li>■ 'It doesn't always work'</li> <li>■ 'It's always even'</li> <li>■ 'Half of 6 is 3'</li> <li>■ 'Two odds make an even'.</li> </ul> <p>If 'Yes' is circled but a correct unambiguous explanation is given, then award the mark.</p>

## Test B questions 9–11

Question	Requirement	Mark	Additional guidance									
9	Diagram completed as shown: <table border="1" style="margin: 10px auto;"> <thead> <tr> <th></th> <th>multiples of 9</th> <th>not multiples of 9</th> </tr> </thead> <tbody> <tr> <th>even</th> <td style="text-align: center;">72 54</td> <td style="text-align: center;">56 84</td> </tr> <tr> <th>not even</th> <td style="text-align: center;">63 45</td> <td style="text-align: center;">49 75</td> </tr> </tbody> </table>		multiples of 9	not multiples of 9	even	72 54	56 84	not even	63 45	49 75	1m	Accept recognisable misspellings. Accept 'odd' for 'not even'. Accept alternative unambiguous indications, eg lines drawn from the labels to the appropriate parts of the diagram.
	multiples of 9	not multiples of 9										
even	72 54	56 84										
not even	63 45	49 75										
10	Any two squares shaded, eg 	1m	Accept part shapes shaded provided the intention is clear. Accept inaccuracies in shading provided the intention is clear.									
11	Diagram completed as shown: 	1m	Accept inaccuracies in shading provided the intention is clear.									



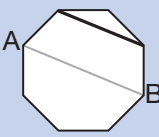
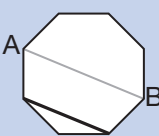
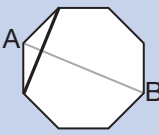
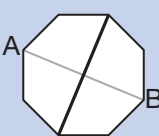
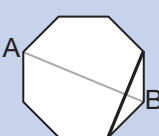
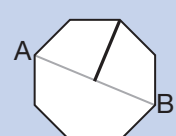
## Test B questions 12–14

Question	Requirement	Mark	Additional guidance																																																		
12	<p>Award <b>TWO</b> marks for cards completed as shown:</p> <div style="display: flex; align-items: center; margin-bottom: 10px;"> <div style="border: 1px solid black; padding: 2px 5px; margin-right: 5px;">6</div> <div style="border: 1px solid black; padding: 2px 5px; margin-right: 5px;">8</div> <div style="margin: 0 5px;">&gt;</div> <div style="border: 1px solid black; padding: 2px 5px; margin-right: 5px;">5</div> <div style="border: 1px solid black; padding: 2px 5px;">3</div> </div> <div style="display: flex; align-items: center; margin-bottom: 10px;"> <div style="border: 1px solid black; padding: 2px 5px; margin-right: 5px;">1</div> <div style="border: 1px solid black; padding: 2px 5px; margin-right: 5px;">0</div> <div style="margin: 0 5px;">&lt;</div> <div style="border: 1px solid black; padding: 2px 5px; margin-right: 5px;">2</div> <div style="border: 1px solid black; padding: 2px 5px;">4</div> </div> <div style="display: flex; align-items: center; margin-bottom: 10px;"> <div style="border: 1px solid black; padding: 2px 5px; margin-right: 5px;">9</div> <div style="margin: 0 5px;">&gt;</div> <div style="border: 1px solid black; padding: 2px 5px;">7</div> </div> <p>OR</p> <div style="display: flex; align-items: center; margin-bottom: 10px;"> <div style="border: 1px solid black; padding: 2px 5px; margin-right: 5px;">6</div> <div style="border: 1px solid black; padding: 2px 5px; margin-right: 5px;">8</div> <div style="margin: 0 5px;">&gt;</div> <div style="border: 1px solid black; padding: 2px 5px; margin-right: 5px;">5</div> <div style="border: 1px solid black; padding: 2px 5px;">4</div> </div> <div style="display: flex; align-items: center; margin-bottom: 10px;"> <div style="border: 1px solid black; padding: 2px 5px; margin-right: 5px;">1</div> <div style="border: 1px solid black; padding: 2px 5px; margin-right: 5px;">0</div> <div style="margin: 0 5px;">&lt;</div> <div style="border: 1px solid black; padding: 2px 5px; margin-right: 5px;">2</div> <div style="border: 1px solid black; padding: 2px 5px;">3</div> </div> <div style="display: flex; align-items: center; margin-bottom: 10px;"> <div style="border: 1px solid black; padding: 2px 5px; margin-right: 5px;">9</div> <div style="margin: 0 5px;">&gt;</div> <div style="border: 1px solid black; padding: 2px 5px;">7</div> </div> <p>If the answer is incorrect, award <b>ONE</b> mark for any two inequalities completed correctly <b>AND</b> no digit repeated within the two correct inequalities.</p>	<p><b>Up to 2m</b></p> <div style="border: 1px solid black; border-radius: 50%; width: 20px; height: 20px; display: flex; align-items: center; justify-content: center; margin: 5px auto;">U1</div>	<p><b>Do not</b> accept any digit used more than once.</p>																																																		
13	<p>Diagram completed correctly as shown:</p> <div style="margin-bottom: 10px;"> <table border="1" style="border-collapse: collapse; text-align: center; width: 100px; height: 100px;"> <tr><td style="width: 20px; height: 20px;">○</td><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td></tr> <tr><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;">○</td><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td></tr> <tr><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;">○</td><td style="width: 20px; height: 20px;">○</td><td style="width: 20px; height: 20px;">○</td></tr> <tr><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;">●</td><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td></tr> <tr><td style="width: 20px; height: 20px;">●</td><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td></tr> </table> </div> <p>OR</p> <div> <table border="1" style="border-collapse: collapse; text-align: center; width: 100px; height: 100px;"> <tr><td style="width: 20px; height: 20px;">○</td><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td></tr> <tr><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;">○</td><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td></tr> <tr><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;">○</td><td style="width: 20px; height: 20px;">○</td><td style="width: 20px; height: 20px;">○</td></tr> <tr><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;">●</td><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td></tr> <tr><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;">●</td><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td></tr> </table> </div>	○						○						○	○	○		●				●					○						○						○	○	○			●					●			<p><b>1m</b></p>	<p>Accept alternative unambiguous indications, eg squares shaded, ticked or crossed.</p>
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14	<p>Award <b>TWO</b> marks for the correct answer of 76</p> <p>If the answer is incorrect, award <b>ONE</b> mark for evidence of appropriate method, eg</p> $44 \times 2 = 88$ $88 - 12$	<p><b>Up to 2m</b></p>	<p>Answer need not be obtained for the award of <b>ONE</b> mark.</p>																																																		

## Test B questions 15–19

Question	Requirement	Mark	Additional guidance
15a	7	1m	
15b	12	1m	
16	<p>Award <b>TWO</b> marks for the correct answer of £33.75</p> <p>If the answer is incorrect, award <b>ONE</b> mark for evidence of appropriate method, eg:</p> <ul style="list-style-type: none"> <li>■ Ben: £15 Nisha: £15 – £7 = £8 Emily: £8 + £2.75 = £10.75 £15 + £8 + £10.75</li> </ul> <p><b>OR</b></p> <ul style="list-style-type: none"> <li>■ 15 + (15 – 7) + (15 – 7 + 2.75)</li> </ul>	<p><b>Up to 2m</b></p> <p>U1</p>	<p>Accept for <b>ONE</b> mark £3375 <b>OR</b> £3375p as evidence of appropriate method.</p> <p>Answer need not be obtained for the award of <b>ONE</b> mark.</p>
17a	Answer in the range 1.85 to 1.95 exclusive.	1m	
17b	1.8	1m	
18	<p>Award <b>TWO</b> marks for the correct answer of 13</p> <p>If the answer is incorrect, award <b>ONE</b> mark for evidence of appropriate method, eg</p> <p>500 ÷ 15 = 33 500 ÷ 25 = 20 33 – 20</p>	<p><b>Up to 2m</b></p>	<p>Award <b>ONE</b> mark for an answer of <math>13\frac{1}{3}</math> <b>OR</b> <math>13.\dot{3}</math> <b>OR</b> 13.3 <b>OR</b> 13.33, etc.</p> <p>Award <b>ONE</b> mark for sight of 20 <b>AND</b> 33 with no evidence of an incorrect method.</p> <p>Answer need not be obtained for the award of <b>ONE</b> mark.</p>
19	58.906	1m	<p>Accept 58.9 <b>OR</b> 58.91</p> <p><b>Do not</b> accept 59</p> <p><b>Do not</b> accept –58.906</p>

## Test B questions 20–21

Question	Requirement	Mark	Additional guidance
20	Award <b>TWO</b> marks for boxes ticked and crossed as shown: <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/>  If the answer is incorrect, award <b>ONE</b> mark for any three boxes correctly completed.	Up to 2m	Accept alternative unambiguous indications such as <b>Y</b> or <b>N</b> . For <b>TWO</b> marks accept: <input checked="" type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>
21a	Two vertices joined as shown:  OR 	1m	Accept slight inaccuracies in drawing, provided the intention is clear. Accept two lines if both are correct.
21b	 OR  OR 	1m	Accept slight inaccuracies in drawing, provided the intention is clear. Accept more than one line if all are correct. Accept a line perpendicular to AB, drawn from one vertex, which meets or crosses AB, eg 

## Test B questions 22–24

Question	Requirement	Mark	Additional guidance
<b>22</b>	<p>Award <b>TWO</b> marks for the correct answer of 8010</p> <p>If the answer is incorrect, award <b>ONE</b> mark for evidence of appropriate method, eg:</p> <ul style="list-style-type: none"> <li>■ <math>8000 \div 45 =</math> wrong number then wrong number rounded to the nearest whole number</li> </ul> <p><b>OR</b></p> <ul style="list-style-type: none"> <li>■ a 'trial and improvement' method, eg  <math>150 \times 45 = 6750</math>  <math>200 \times 45 = 9000</math>  <math>175 \times 45 = 7875</math></li> </ul>	<p><b>Up to 2m</b></p> <p style="border: 1px solid black; border-radius: 50%; width: 30px; height: 30px; display: flex; align-items: center; justify-content: center; margin: 0 auto;">U1</p>	<p>Accept 178 for <b>TWO</b> marks.</p> <p>Accept for <b>ONE</b> mark 7965 <b>OR</b> 177 as evidence of appropriate method.</p> <p><i>A 'trial and improvement' method must show evidence of improvement.</i></p> <p><i>Answer need not be obtained for the award of <b>ONE</b> mark.</i></p>
<b>23a</b>	33	<b>1m</b>	Accept $3 \times 11$
<b>23b</b>	16	<p><b>1m</b></p> <p style="border: 1px solid black; border-radius: 50%; width: 30px; height: 30px; display: flex; align-items: center; justify-content: center; margin: 0 auto;">U1</p>	Accept $19 - 3$
<b>24</b>	<p>Award <b>TWO</b> marks for the correct answer of 54</p> <p>If the answer is incorrect, award <b>ONE</b> mark for evidence of appropriate method, eg:</p> <ul style="list-style-type: none"> <li>■ <math>72 \div 4 = 18</math>  <math>18 \div 2 = 9</math>  <math>(18 \times 2) + (9 \times 2)</math></li> </ul> <p><b>OR</b></p> <ul style="list-style-type: none"> <li>■ <math>72 \div 4 \times 3</math></li> </ul>	<p><b>Up to 2m</b></p> <p style="border: 1px solid black; border-radius: 50%; width: 30px; height: 30px; display: flex; align-items: center; justify-content: center; margin: 0 auto;">U1</p>	<p><i>Answer need not be obtained for the award of <b>ONE</b> mark.</i></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 21. In addition, a 'quick reference' mark scheme is provided on page 20. 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 2008

## quick reference mark scheme

### Practice question

--	--

### Time: 5 seconds

1	10
---	----

2	19
---	----

3	64
---	----

4	30 mm
---	-------

5	33
---	----

### Time: 10 seconds

6	600
---	-----

7	65
---	----

8	£ 3.98
---	--------

9	6 am	Accept 6
---	------	----------

10	16
----	----

11	0.14	0.24	0.34
	0.44	0.54	

12	90
----	----

13	10.5	Accept equivalent fractions or decimals
----	------	---

14	110 cm <sup>2</sup>
----	---------------------

15	50
----	----

### Time: 15 seconds

16	320
----	-----

17	50
----	----

18	1500
----	------

19	0.45
----	------

20	£ 3.50
----	--------

## Mental mathematics questions 1–20

Question	Requirement	Mark	Additional guidance
1	10	1m	
2	19	1m	
3	64	1m	
4	30mm	1m	
5	33	1m	
6	600	1m	
7	65	1m	
8	£3.98	1m	
9	6am	1m	Accept 6
10	16	1m	
11	<div style="display: flex; justify-content: space-around; align-items: center;"> <span>0.14</span> <span style="border: 1px solid black; border-radius: 50%; padding: 2px;">0.24</span> <span>0.34</span> </div> <div style="display: flex; justify-content: space-around; align-items: center; margin-top: 5px;"> <span>0.44</span> <span>0.54</span> </div>	1m	<p>Accept any other way of indicating the answer, eg underlining.</p> <p><b>Do not</b> accept if more than one answer is indicated unless the pupil's intention is clear.</p>
12	90	1m	
13	10.5	1m	Accept equivalent fractions or decimals.
14	110cm <sup>2</sup>	1m	
15	50	1m	
16	320	1m	
17	50	1m	
18	1500	1m	
19	0.45	1m	
20	£3.50	1m	













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