

Year 7 progress test in mathematics

Mark schemes for Paper 1, Paper 2 and Mental mathematics

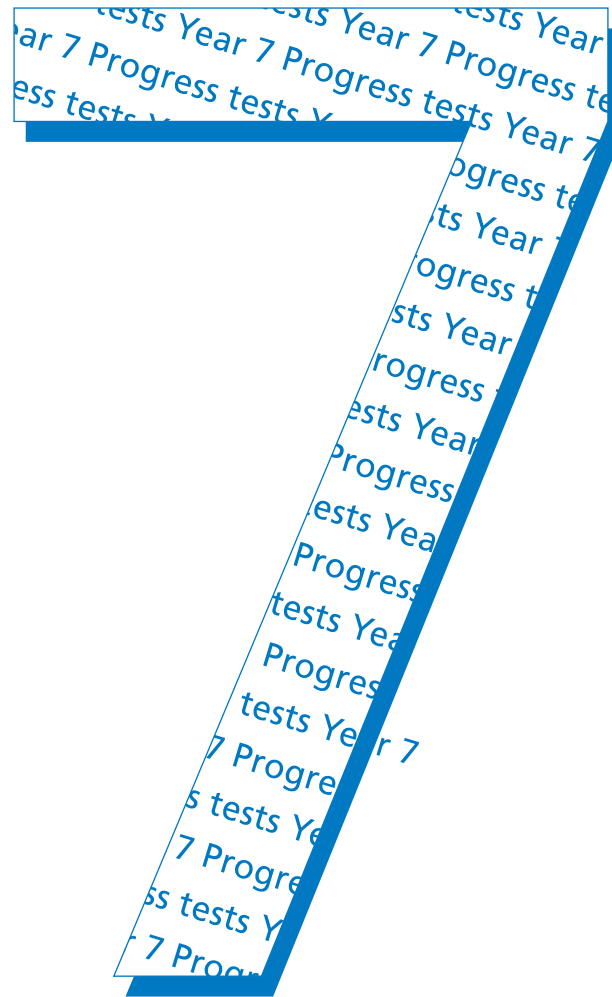
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YEAR
7

LEVELS
3-4

2003

2003



Introduction

The test papers will be marked by external markers. The markers will follow the mark scheme in the booklet, which is provided here to inform teachers.

This booklet contains the mark schemes for Paper 1, Paper 2 and the Mental mathematics test. Questions have been given names so that each one has a unique identifier.

The structure of the mark schemes

The marking information for questions in the written tests is set out in the form of tables, which start on page 9 (Paper 1) and 20 (Paper 2) of this booklet. The two columns of the left-hand side of each table provide a quick reference to the question number, question part, and the total number of marks available for that question part.

The ‘**Correct response**’ column usually includes 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, and whether the marks are independent or cumulative;
- examples of some different types of correct response, including the most common and the minimum acceptable.

The ‘**Additional guidance**’ column indicates alternative acceptable responses, and provides details of specific types of response that are unacceptable. Other guidance, such as when ‘follow through’ is allowed, is provided as necessary.

For diagrammatic responses, in which judgements on accuracy are required, a marking overlay has been provided as the centre page of this booklet.

General guidance

Using the mark schemes

Answers that are numerically equivalent or algebraically equivalent are acceptable unless the mark scheme states otherwise.

In order to ensure consistency of marking, the most frequent procedural queries are listed on the following two pages with the prescribed correct action. This is followed by further guidance, relating to marking of questions that involve money, time, coordinates or algebra. Unless otherwise specified in the mark scheme, markers should apply the following guidelines in all cases.

Questions with a *Using and applying mathematics* element are identified in the mark scheme by an encircled U with a number that indicates the significance of using and applying mathematics in answering the question.

What if ...

<i>The pupil's response does not match closely any of the examples given.</i>	Markers should use their judgement in deciding whether the response corresponds with the statement of requirements given in the 'Correct response' column. Refer also to the additional guidance.
<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, is acceptable. Provided there is no ambiguity, condone the continental practice of using a comma for a decimal point.
<i>The pupil has made a conceptual error.</i>	In some questions, a method mark is available provided the pupil has made a computational, rather than conceptual, error. A computational error is a 'slip' such as writing $4 \times 6 = 18$ in an otherwise correct long multiplication. A conceptual error is a more serious misunderstanding of the relevant mathematics; when such an error is seen no method marks may be awarded. Examples of conceptual errors are: misunderstanding of place value, such as multiplying by 2 rather than 20 when calculating 35×27 ; subtracting the smaller value from the larger in calculations such as $45 - 26$ to give the answer 21; incorrect signs when working with negative numbers.
<i>The pupil's accuracy is marginal according to the overlay provided.</i>	Overlays can never be 100% accurate. However, provided the answer is within, or touches, the boundaries given, the mark(s) should be awarded.
<i>The pupil's answer correctly follows through from earlier incorrect work.</i>	'Follow through' marks may be awarded only when specifically stated in the mark scheme, but should not be allowed if the difficulty level of the question has been lowered. Either the correct response or an acceptable 'follow through' response should be marked as correct.
<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. If the original intention or difficulty level of the question is not reduced, deduct one mark only. If the original intention or difficulty level is reduced, do not award any marks for the question part.
<i>The correct answer is in the wrong place.</i>	Where a pupil has shown understanding of the question, the mark(s) should 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.

<p><i>The final answer is wrong but the correct answer is shown in the working.</i></p>	<p>Where appropriate, detailed guidance will be given in the mark scheme, and must be adhered to. If no guidance is given, markers will need to examine each case to decide whether:</p>	
	<p>the incorrect answer is due to a transcription error;</p>	<p>If so, award the mark.</p>
	<p>in questions not testing accuracy, the correct answer has been given but then rounded or truncated;</p>	<p>If so, award the mark.</p>
	<p>the pupil has continued to give redundant extra working which does not contradict work already done;</p>	<p>If so, award the mark.</p>
	<p>the pupil has continued, in the same part of the question, to give redundant extra working which does contradict work already done.</p>	<p>If so, do not award the mark. Where a question part carries more than one mark, only the final mark should be withheld.</p>
<p><i>The pupil's answer is correct but the wrong working is seen.</i></p>	<p>A correct response should always be marked as correct unless the mark scheme states otherwise.</p>	
<p><i>The correct response has been crossed (or rubbed) out and not replaced.</i></p>	<p>Mark, according to the mark scheme, any legible crossed (or rubbed) out work that has not been replaced.</p>	
<p><i>More than one answer is given.</i></p>	<p>If all answers given are correct (or a range of answers is given, all of which are correct), the mark should be awarded unless prohibited by the mark scheme. If both correct and incorrect responses are given, no mark should be awarded.</p>	
<p><i>The answer is correct but, in a later part of the question, the pupil has contradicted this response.</i></p>	<p>A mark given for one part should not be disallowed for working or answers given in a different part, unless the mark scheme specifically states otherwise.</p>	

Marking specific types of question

Responses involving money <i>For example: £3.20 £7</i>	
Accept ✓	Do not accept ✗
<p>✓ Any unambiguous indication of the correct amount eg £3.20(p), £3 20, £3,20, 3 pounds 20, £3-20, £3 20 pence, £3:20, £7.00</p> <p>✓ The £ sign is usually already printed in the answer space. Where the pupil writes an answer other than in the answer space, or crosses out the £ sign, accept an answer with correct units in pounds and/or pence eg 320p 700p</p>	<p>✗ Incorrect or ambiguous use of pounds or pence eg £320, £320p or £700p, or 3.20 or 3.20p not in the answer space.</p> <p>✗ Incorrect placement of decimal points, spaces, etc or incorrect use or omission of 0 eg £3.2, £3 200, £32 0, £3-2-0, £7.0</p>

Responses involving time <i>A time interval For example: 2 hours 30 mins</i>	
Accept ✓	Take care ! Do not accept ✗
<p>✓ Any unambiguous indication eg 2.5 (hours), 2h 30</p> <p>✓ Digital electronic time ie 2:30</p>	<p>✗ Incorrect or ambiguous time interval eg 2.3(h), 2.30, 2-30, 2h 3, 2.30min</p> <p>! The time unit, hours or minutes, is usually printed in the answer space. Where the pupil writes an answer other than in the answer space, or crosses out the given unit, accept an answer with correct units in hours or minutes, unless the question has asked for a specific unit to be used.</p>
A specific time For example: 8.40am 17:20	
Accept ✓	Do not accept ✗
<p>✓ Any unambiguous, correct indication eg 08.40, 8.40, 8:40, 0840, 8 40, 8-40, twenty to nine, 8,40</p> <p>✓ Unambiguous change to 12 or 24 hour clock eg 17:20 as 5:20pm, 17:20pm</p>	<p>✗ Incorrect time eg 8.4am, 8.40pm</p> <p>✗ Incorrect placement of separators, spaces, etc or incorrect use or omission of 0 eg 840, 8:4:0, 084, 84</p>

Responses involving coordinates For example: (5, 7)	
Accept ✓	Do not accept ✗
✓ Unambiguous but unconventional notation eg (05, 07) (five, seven) $\begin{matrix} x & y \\ (5, & 7) \end{matrix}$ ($x = 5, y = 7$)	✗ Incorrect or ambiguous notation eg (7, 5) (5x, 7y) (x5, y7) ($5^x, 7^y$)

Responses involving the use of algebra For example: $2 + n$ $n + 2$ $2n$	
Accept ✓	Take care ! Do not accept ✗
✓ The unambiguous use of a different case eg N used for n ✓ Unconventional notation for multiplication eg $n \times 2$ or $2 \times n$ or $n2$ or $n + n$ for $2n$ $n \times n$ for n^2 ✓ Multiplication by 1 or 0 eg $2 + 1n$ for $2 + n$ $2 + 0n$ for 2 ✓ Words used to precede or follow equations or expressions eg $t = n + 2$ tiles or tiles = $t = n + 2$ for $t = n + 2$ ✓ Unambiguous letters used to indicate expressions eg $t = n + 2$ for $n + 2$ ✓ Embedded values given when solving equations eg $3 \times 10 + 2 = 32$ for $3x + 2 = 32$! Words or units used within equations or expressions should be ignored if accompanied by an acceptable response, but should not be accepted on their own eg do not accept n tiles + 2 n cm + 2 ✗ Change of variable eg x used for n ✗ Ambiguous letters used to indicate expressions eg $n = n + 2$ However, to avoid penalising any of the three types of error above more than once within each question, do not award the mark for the <i>first</i> occurrence of each type within each question. Where a question part carries more than one mark, only the final mark should be withheld. ✗ Embedded values that are then contradicted eg for $3x + 2 = 32$, $3 \times 10 + 2 = 32, x = 5$

Recording marks awarded on the test paper

All questions, even those not attempted by the pupil, will be marked, with a 1 or a 0 entered in each marking space. Where 2m can be split into 1m gained and 1m lost, with no explicit order, then this will be recorded by the marker as 1
0

The total marks awarded for a double page will be written in the box at the bottom of the right-hand page, and the total number of marks obtained on the paper will be recorded on the front of the test paper.

A total of 100 marks is available (40 from Paper 1, 40 from Paper 2 and 20 from the mental mathematics test).

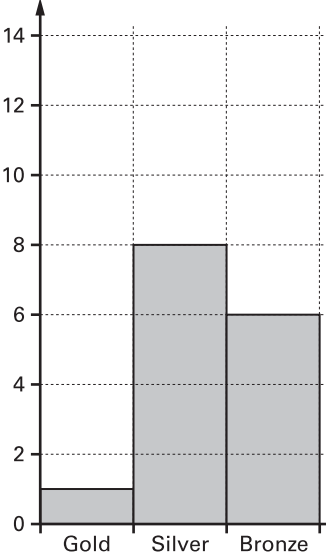
Awarding levels

The sum of the marks gained on Paper 1, Paper 2 and the mental mathematics paper determines the level awarded. Level threshold tables, which show the mark ranges for the award of different levels, will be available on the QCA website (www.qca.org.uk) from Monday 1 September 2003. QCA will also send a copy to each school during the autumn term.

Schools will be notified of pupils' results by means of a marksheet, which will be returned to schools by the external marking agency with the pupils' marked scripts. The marksheet will include pupils' scores on the test papers and the levels awarded.

The 2003 year 7 progress mathematics tests and mark schemes were developed by the Mathematics Test Development Team at QCA.

Mark scheme for Paper 1

Question	Olympic Games	
1	Correct response	Additional guidance
	<p data-bbox="256 483 296 517">2m</p> <p data-bbox="347 483 831 607">Completes the bar chart correctly for 1996, showing 3 non-overlapping bars of heights 1, 8 and 6 in the correct order eg</p> <div data-bbox="376 611 831 1227" style="text-align: center;">  <p data-bbox="504 629 831 1182">A bar chart with a vertical axis labeled 'Number of medals' ranging from 0 to 14 in increments of 2. The horizontal axis is labeled 'Year 1996' and has three categories: Gold, Silver, and Bronze. The Gold bar has a height of 1, the Silver bar has a height of 8, and the Bronze bar has a height of 6. The bars are shaded grey.</p> </div> <p data-bbox="256 1373 296 1429"><i>or</i></p> <p data-bbox="256 1395 296 1429">1m</p> <p data-bbox="347 1395 783 1429">Shows correct heights for any two bars</p> <p data-bbox="347 1462 376 1485">or</p> <p data-bbox="347 1518 890 1574">Shows correct heights for all three bars but in an incorrect order</p>	<p data-bbox="943 483 1461 629">! <i>Bars not shaded, or not of correct width, or not ruled or accurate</i> Accept provided the pupil's intention is clear and that the 'Gold' bar is nearer to 1 than 0 or 2</p>

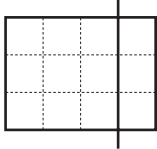
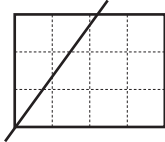
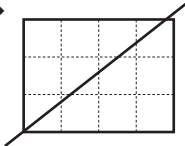
Question	What number?		
2		Correct response	Additional guidance
	1m	64	
	1m	49	
	1m	20	
	1m	4	

Question	Morning		
3		Correct response	Additional guidance
a	1m	(0)6:25	<p>✓ <i>Responses in words</i> eg</p> <ul style="list-style-type: none"> ♦ Twenty-five past six <p>! <i>Use of am or pm, or 24 hour clock</i> Ignore eg, accept</p> <ul style="list-style-type: none"> ♦ 6:25 am ♦ 6:25 pm ♦ 18:25
b	1m	20	

Question		Euro	
4		Correct response	Additional guidance
a	1m	Shows a correct combination of four banknotes whose values sum to 800 eg <ul style="list-style-type: none"> ■ 50, 50, 200, 500 ■ 100, 100, 100, 500 ■ 200, 200, 200, 200 	<p>! Units incorrect Ignore</p> <p>! 800 consistently misread as 80 eg</p> <ul style="list-style-type: none"> ♦ 20, 20, 20, 20 for part (a) 50, 10, 10, 10 for part (b) <p>If both answers are correct for 80, mark as 0; 1 provided banknotes other than those given are not used</p> <p>✗ Banknotes other than those given eg</p> <ul style="list-style-type: none"> ♦ 200, 200, 300, 100
b	1m (U1)	Shows a correct combination of four banknotes whose values sum to 800, other than one credited in part (a)	

Question		Using grids	
5		Correct response	Additional guidance
a	1m	Indicates numbers on the grid that sum to 460 eg <ul style="list-style-type: none"> ■ 400 and 60 ■ 300, 20, 50, 80, 6 and 4 	
b	1m	Indicates numbers on the grid that sum to 46 eg <ul style="list-style-type: none"> ■ 40 and 6 	

Question		Calculations	
6		Correct response	Additional guidance
	1m	906	
	1m	159	
	1m	92	

Question		Drawing lines	
7		Correct response	Additional guidance
a	1m	<p>Draws one vertical straight line on the rectangle to make one square and one rectangle that is not a square</p> <p>eg</p> <p>▪ </p>	<p>! <i>Line not ruled or accurate</i></p> <p>Accept provided the pupil's intention is clear</p>
b	1m	<p>Draws one straight line on the rectangle, from a vertex to a side, to make one triangle and one quadrilateral</p> <p>eg</p> <p>▪ </p>	<p>✓ <i>Line not ruled</i></p> <p>! <i>Line not accurate</i></p> <p>If the line meets a side of the rectangle within 2mm of a vertex, assume that the pupil's intention was for the line to go through the vertex</p> <p>eg, do not accept</p> <p>♦ </p>

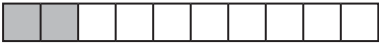



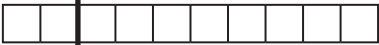

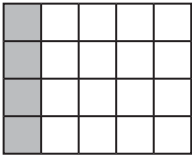
Question		Saving	
8		Correct response	Additional guidance
a	1m	15	<p>! Units of 50p or 20p given Accept only if unambiguous eg, for part (a) accept</p> <ul style="list-style-type: none"> • 15 50p coins • 15 50p <p>However, if in parts (a) and (b) the only error is that the inclusion of 50 or 20 creates ambiguity, mark as 0; 1 eg</p> <ul style="list-style-type: none"> • 15 50, 11 20 • 1550, 1120 <p>! Other units given eg, for part (a)</p> <ul style="list-style-type: none"> • 15p <p>Penalise only the first occurrence</p>
b	1m	11	
	(U1)		

Question		Using decimals	
9		Correct response	Additional guidance
a	1m	5.6 or equivalent	<p>! Change of units Complete correct use of the new units must be shown eg, for part (a) accept</p> <ul style="list-style-type: none"> • 5m 60cm • 560cm <p>However, if the only error is to consistently omit 'cm', mark as 0; 1 eg</p> <ul style="list-style-type: none"> • 5m 60, 6m 30 • 560, 630
b	1m	6.3 or equivalent	

Question	Number line		
10		Correct response	Additional guidance
a	1m	5.2 or equivalent	! <i>Units shown</i> Ignore
b	1m	Indicates 5.8 on the number line	! <i>Indication not accurate</i> Accept if nearer to 5.8 than to 5.7 or 5.9 ! <i>Arrow labelled</i> Ignore, even if incorrect ! <i>Own number line drawn</i> Accept provided each 0.1 is marked and is equally spaced, and both 5 and 6, or both 6 and 7, are labelled
c	1m	5.9 or equivalent	✗ <i>Correct answer shown in working but their final answer given as 59</i> ✗ <i>Their answer shown as negative</i> eg ♦ -5.9

Question	Calendar		
11		Correct response	Additional guidance
a	1m	40	
b	1m	Friday	✓ <i>Unambiguous indication</i> eg ♦ F ♦ 'Fri' ringed at the top of the calendar
c	1m	May 3rd	! <i>Date given in different form</i> Accept only if unambiguous eg, accept ♦ 3/5 ♦ 5/3/30 (US notation) ! <i>Year/day given</i> Ignore ✗ <i>Incomplete response</i> eg ♦ 3rd ♦ May

U1

Question		Percentages	
12		Correct response	Additional guidance
	1m	Completes the first two diagrams correctly eg <ul style="list-style-type: none"> ▪  ▪  ▪  ▪  	<p>! Shading omitted Condone if their response shows the ratio 20 : 80 eg, for the first two diagrams accept</p> <ul style="list-style-type: none"> •  •  <p>! Follow through Allow consistent follow through from the first two diagrams, provided the percentage shaded is not 0, 50 or 100 eg, for the second mark only, accept</p> <ul style="list-style-type: none"> • 40% shaded in all three diagrams Otherwise do not accept eg <ul style="list-style-type: none"> • 40% shaded in only the second and third diagrams
	1m	Completes the third diagram correctly eg <ul style="list-style-type: none"> ▪  	

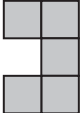
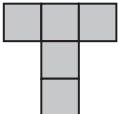
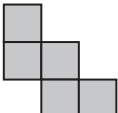
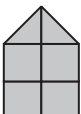
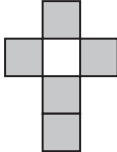
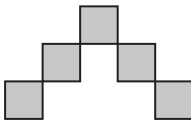
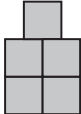
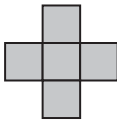

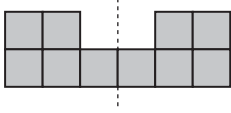
Question		How many pupils?	
13		Correct response	Additional guidance
a	1m	Mon(day) and Thurs(day)	<p>✓ <i>Unambiguous indication</i> eg</p> <ul style="list-style-type: none"> • M and Th <p>✗ <i>Ambiguous indication</i> eg</p> <ul style="list-style-type: none"> • M and T
b	1m	8	<p>✗ <i>Incorrect units</i> eg</p> <ul style="list-style-type: none"> • 8%
	(U1)		

Question			Track
14		Correct response	Additional guidance
a	1m	60	
b	1m	32	

Question			Spinner
15		Correct response	Additional guidance
	1m	Writes at least two green but no blue	! <i>The non-green section left blank</i> Condone

Question		Multiplication																																								
16		Correct response	Additional guidance																																							
	2m or 1m	672 Shows a complete correct method with not more than one computational error eg <ul style="list-style-type: none"> ▪ $\begin{array}{r} 32 \\ \times 21 \\ \hline 620 \text{ (error but must be a multiple of 10)} \\ 32 \\ \hline 652 \end{array}$ ▪ <table border="1" style="display: inline-table; vertical-align: middle;"> <tr><td></td><td>30</td><td>2</td></tr> <tr><td>20</td><td>600</td><td>40</td></tr> <tr><td>1</td><td>30</td><td>2</td></tr> </table> 600 + 40 + 30 + 2 ▪ <table style="display: inline-table; vertical-align: middle;"> <tr><td></td><td>3</td><td>2</td><td></td></tr> <tr><td>0</td><td>6</td><td>0</td><td>4</td><td>2</td></tr> <tr><td>0</td><td>3</td><td>0</td><td>3</td><td>1</td></tr> </table> Answer 673 (error) ▪ 210 + 210 + 210 + 21 + 21 		30	2	20	600	40	1	30	2		3	2		0	6	0	4	2	0	3	0	3	1	Note: Markers may find the following useful: <table style="margin-left: auto; margin-right: auto;"> <tr><td style="text-align: right; padding-right: 20px;">$\begin{array}{r} 32 \\ \times 21 \\ \hline 640 \\ 32 \\ \hline 672 \end{array}$</td><td>$\begin{array}{r} 21 \\ \times 32 \\ \hline 630 \\ 42 \\ \hline 672 \end{array}$</td></tr> </table> <p>✗ <i>Conceptual error</i> eg</p> <ul style="list-style-type: none"> ♦ $\begin{array}{r} 32 \\ \times 21 \\ \hline 64 \\ 32 \\ \hline 96 \end{array}$ ♦ <table style="display: inline-table; vertical-align: middle;"> <tr><td></td><td>3</td><td>2</td><td></td></tr> <tr><td>0</td><td>6</td><td>0</td><td>4</td><td>2</td></tr> <tr><td>0</td><td>3</td><td>0</td><td>2</td><td>1</td></tr> </table> Answer 276 <p>! <i>Method is repeated addition</i> For 1m, at least some multiplication must be shown or implied eg, for 1m do not accept ♦ 21 + 21 + + 21 [shown 32 times]</p>	$\begin{array}{r} 32 \\ \times 21 \\ \hline 640 \\ 32 \\ \hline 672 \end{array}$	$\begin{array}{r} 21 \\ \times 32 \\ \hline 630 \\ 42 \\ \hline 672 \end{array}$		3	2		0	6	0	4	2	0	3	0	2	1
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Question		Metric	
17		Correct response	Additional guidance
a	1m	500	
b	1m	90	
c	1m	8	

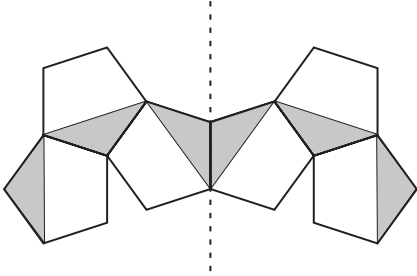
Question	Five tiles	
18	Correct response	Additional guidance
<p>1m</p>	<p>Shades a total of 5 squares to make a shape that has exactly one line of symmetry eg</p> <ul style="list-style-type: none"> ▪  ▪  ▪  ▪  	<p>! <i>Squares not shaded or internal lines not drawn</i> Accept provided there is no ambiguity</p> <p>✓ <i>Shape has a 'hole' or has corner-to-corner joins</i> eg</p> <ul style="list-style-type: none"> ♦  ♦  <p>! <i>Grid lines not used</i> eg</p> <ul style="list-style-type: none"> ♦  <p>Accept provided the pupil's intention is clear</p> <p>✗ <i>Shape has more than one line of symmetry</i> eg</p> <ul style="list-style-type: none"> ♦  <p>! <i>Other shapes drawn</i> If their five squares has exactly one line of symmetry, ignore further reflections eg, accept</p> <ul style="list-style-type: none"> ♦  <p>Do not accept their five squares reflected with the only line of symmetry the mirror line used for the reflection eg</p> <ul style="list-style-type: none"> ♦ 

U1

The attached overlay should be removed and used to mark question 6 on Paper 2.

Mark scheme for Paper 2

Question		Right or left-handed																			
1		Correct response	Additional guidance																		
a	1m	4																			
b	1m (U1)	Completes the table correctly, ie <table style="margin-left: auto; margin-right: auto;"> <tr> <td></td> <td>boys</td> <td>girls</td> </tr> <tr> <td>right</td> <td>11</td> <td>9</td> </tr> <tr> <td>left</td> <td>2</td> <td>3</td> </tr> </table>		boys	girls	right	11	9	left	2	3	✗ <i>Some values left blank</i> eg <table style="margin-left: auto; margin-right: auto;"> <tr> <td>♦</td> <td>boys</td> <td>girls</td> </tr> <tr> <td>right</td> <td></td> <td>9</td> </tr> <tr> <td>left</td> <td>2</td> <td></td> </tr> </table>	♦	boys	girls	right		9	left	2	
	boys	girls																			
right	11	9																			
left	2	3																			
♦	boys	girls																			
right		9																			
left	2																				

Question		Mirror line	
2		Correct response	Additional guidance
	2m or 1m	Draws in and shades three triangles correctly, ie  or Draws in three triangles correctly but the shading is omitted or incorrect or Any two of the triangles are drawn in and shaded correctly, even if the third triangle is incorrect or omitted	! <i>Lines not ruled or accurate</i> Accept provided the pupil's intention is clear

Question	Theatre	
3	Correct response	Additional guidance
2m	£ 272.35	<p>! Answer rounded or truncated For 2m, accept 272 provided there is no evidence of an incorrect method For 2m, do not accept 273 unless a more accurate value or a correct method is seen</p>
or 1m	<p>Shows at least one of the values 20.95, 239.85 or 32.5(0)</p> <p>or</p> <p>Shows or implies a complete correct method eg</p> <ul style="list-style-type: none"> ■ $(18.45 + 2.5) \times 13$ ■ $18.45 + 2.5(0) = 21$ (<i>error</i>) $21 \times 13 = (273)$ ■ Digits 27235 seen ■ Answer 273 	
		<p>! Necessary brackets omitted Condone eg, accept for 1m</p> <ul style="list-style-type: none"> ♦ $18.45 + 2.5(0) \times 13$ ♦ 50.95 ♦ $2.5(0) + 18.45 \times 13$ ♦ 242.35

Question	Names	
4	Correct response	Additional guidance
2m	Places all five names correctly, ie	<p>! Incorrect spelling Condone, provided there is no ambiguity</p>
or 1m	Places at least three names correctly	
(U2)		

Question	Temperature		
5		Correct response	Additional guidance
a	1m	Indicates -8 on the thermometer	! <i>Indication not accurate</i> Accept, provided it is closer to -8 than to -9 or -7
b	1m	5	
c	1m	Orders correctly, ie -9°C -3°C 0°C 6°C	✓ <i>Unambiguous indication</i> eg • 4th, 1st, 2nd, 3rd ! <i>Units omitted or incorrect</i> Ignore

Question	Marking overlay available		Climbing
6		Correct response	Additional guidance
a	1m	Indicates $\frac{1}{2}$ or equivalent fraction	✓ <i>Value between 0.4 and 0.6 inclusive, even if given as a decimal or percentage</i>
	1m	Indicates $\frac{3}{4}$ or equivalent fraction	✓ <i>Value between 0.65 and 0.85 inclusive, even if given as a decimal or percentage</i> eg • $\frac{2}{3}$
b	1m	Indicates the position of the climber within the tolerance as shown by the overlay	✓ <i>Any unambiguous indication</i> ! <i>Accuracy difficult to judge</i> eg • Climber drawn, but no line • Line not horizontal In drawings of the climber with no line, take as their indication the mid-point of the climber's feet. Otherwise, do not accept if their indication extends beyond the tolerance as shown by the overlay

Question		Estimates	
7		Correct response	Additional guidance
	1m	Indicates 0.3 litres, ie <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	
	1m	Indicates 100 grams, ie <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>	

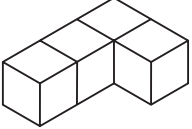
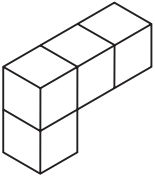
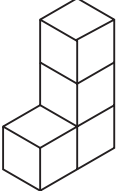
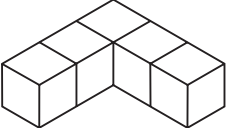
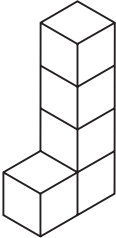
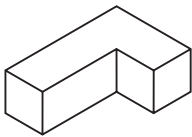
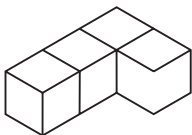
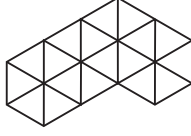
Question		Measure	
8		Correct response	Additional guidance
a	1m	Gives a value from 7.4 to 7.6 inclusive, or equivalent	
b	1m	Gives a value from 17.9 to 18.1 inclusive, or equivalent	✓ Follow through as 10.5 + their (a)

Question		Safari	
9		Correct response	Additional guidance
a	1m	30	
b	1m	15	

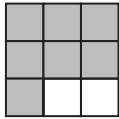
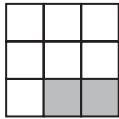
Question		Printing	
10		Correct response	Additional guidance
a	1m	25	
b	2m <i>or</i> 1m	5, with no evidence of an incorrect method Shows the value 300 or Shows or implies that 3 photos take 1 minute or Shows or implies a complete correct method eg <ul style="list-style-type: none"> ■ $15 \times 20 \div 60$ ■ $15 \times 20 = 320$ (<i>error</i>), so 5 minutes 20 seconds or The only error is to assume that there are 100 seconds in 1 minute eg <ul style="list-style-type: none"> ■ Gives the answer 3 	<p>✗ <i>Correct answer from an incorrect method</i></p> <p>eg</p> <ul style="list-style-type: none"> ♦ $20 - 15 = 5$

Question		Squares	
11		Correct response	Additional guidance
	1m	<p>Completes the sentence by stating that the sides must be equal in length</p> <p>eg</p> <ul style="list-style-type: none"> ■ ... the same length ■ ... equal ■ ... one quarter of the perimeter 	<p>✓ <i>Minimally acceptable statement</i></p> <p>eg</p> <ul style="list-style-type: none"> ◆ ... the same ◆ ... 3cm <p>✓ <i>Unambiguous statement</i></p> <p>eg</p> <ul style="list-style-type: none"> ◆ ... equilateral ◆ ... equivalent <p>✗ <i>Incomplete or incorrect statement</i></p> <p>eg</p> <ul style="list-style-type: none"> ◆ ... four ◆ ... straight ◆ ... the same length, half the perimeter
	1m	<p>Completes the sentence by stating that the angles must be equal in size</p> <p>eg</p> <ul style="list-style-type: none"> ■ ... 90° ■ ... right angles ■ ... the same angles ■ ... equal 	<p>✓ <i>Minimally acceptable statement</i></p> <p>eg</p> <ul style="list-style-type: none"> ◆ ... the same ◆ ... 90 ◆ ... right <p>! <i>Incorrect units</i></p> <p>Ignore</p> <p>✗ <i>Incomplete or incorrect statement</i></p> <p>eg</p> <ul style="list-style-type: none"> ◆ ... four ◆ ... corners ◆ ... 360°

Question		Area	
12		Correct response	Additional guidance
	1m	Gives a value between $18\frac{1}{2}$ and $20\frac{1}{2}$ inclusive	✓ <i>Equivalent fractions or decimals</i>

Question	Four cubes	
13	Correct response	Additional guidance
	<p data-bbox="236 371 280 398">2m</p> <p data-bbox="331 371 861 430">Draws an L-shape, with the correct dimensions, in any orientation</p> <p data-bbox="331 434 360 461">eg</p> <ul style="list-style-type: none"> <li data-bbox="352 465 624 600">▪  <li data-bbox="352 633 587 808">▪  <li data-bbox="352 842 549 1032">▪  <p data-bbox="236 1104 280 1162"><i>or</i> 1m</p> <p data-bbox="331 1133 893 1249">Draws a correct view, using the isometric grid maintaining three dimensions, but omits one or more external lines, or some or all hidden lines are shown</p> <p data-bbox="331 1283 360 1310">or</p> <p data-bbox="331 1344 874 1460">Draws a view of a prism with an L-shaped cross-section, using the isometric grid and with all external lines shown and no hidden lines shown, but with one incorrect dimension</p> <p data-bbox="331 1464 360 1491">eg</p> <ul style="list-style-type: none"> <li data-bbox="352 1496 660 1630">▪  <li data-bbox="352 1715 580 1951">▪  	<p data-bbox="927 371 1445 430">! <i>Lines not ruled</i> Accept provided the pupil's intention is clear</p> <p data-bbox="927 479 1453 595">! <i>Drawing not accurate</i> Accept vertices within 2mm of the dots. If the drawing is less accurate, but the pupil's intention is clear, deduct one mark</p> <p data-bbox="927 645 1329 703">✓ <i>Some or all internal lines omitted</i> eg</p> <ul style="list-style-type: none"> <li data-bbox="975 707 1230 842">▪  <p data-bbox="927 891 1437 976">! <i>L-shape enlarged</i> For 2m or 1m, accept provided a consistent scale factor has been used for all lengths</p> <p data-bbox="927 1025 1422 1111">× <i>For 2m, external lines omitted or some or all hidden lines shown</i> eg</p> <ul style="list-style-type: none"> <li data-bbox="975 1115 1230 1249">▪  <li data-bbox="975 1290 1241 1424">▪ 

Question		Counters	
14		Correct response	Additional guidance
a	1m	Indicates only the correct probability, ie <div style="display: flex; justify-content: space-around; align-items: center;"> $\frac{1}{4}$ $\frac{1}{3}$ $\frac{1}{2}$ $\frac{1}{1}$ </div>	
b	1m	10	

Question		Square grid	
15		Correct response	Additional guidance
a	1m	$\frac{7}{9}$ or equivalent fraction	<p>! Answer given as a decimal If a correct fraction is seen, ignore subsequent conversion to a decimal even if incorrect If only a decimal is given, accept 0.78 or 0.77(...) Do not accept 0.8 unless a more accurate value is seen</p>
b	1m	Indicates the correct squares, ie 	<p>✗ Incorrect shading eg </p>

Question		Nursery school	
16		Correct response	Additional guidance
a	1m	20	<p>! <i>Incorrect units</i> eg, for part (a)</p> <ul style="list-style-type: none"> • 20% <p>Penalise only the first occurrence</p> <p>! <i>Answers to both parts otherwise correct, but given as percentages or decimals</i> eg</p> <ul style="list-style-type: none"> • 25% in part (a), 37.5% (or 37 or 38) in part (b) <p>Withhold only the mark in part (a)</p> <p>✗ <i>Answers consistently given as fractions</i></p>
b	1m	30	<p>! <i>Follow through from part (a)</i> Accept $1.5 \times$ their (a), or $\frac{1}{2}(80 - \text{their (a)})$ eg, from their (a) as 10, accept</p> <ul style="list-style-type: none"> • 15 • 35

Question		What numbers?	
17		Correct response	Additional guidance
a	1m	3	<p>✗ <i>Incorrect statement</i> eg, for part (a)</p> <ul style="list-style-type: none"> • $n = 3 + 5$
b	1m	10	

Question	Measuring jugs	
18	Correct response	Additional guidance
2m <i>or</i> 1m (U1)	Indicates A and gives the answer 75 Shows or implies that jug A contains 400 or Shows or implies that jug B contains 325	

Question	Square number	
19	Correct response	Additional guidance
1m	25	✗ <i>Incomplete processing</i> eg ♦ 5×5

Question	Consecutive											
20		Correct response	Additional guidance									
	1m	<p>Indicates No and gives a correct explanation</p> <p>The most common correct explanations:</p> <p>Give a counter example eg</p> <ul style="list-style-type: none"> ■ $2 + 3 = 5$ which is odd ■ 5, 6 gives 11 ■ $3 + 4$ is not even <p>Show why the result must be odd eg</p> <ul style="list-style-type: none"> ■ You will always add an odd to an even and that gives you an odd number ■ $\text{Even} + \text{odd} = \text{odd}$ ■ <table style="display: inline-table; border: 1px solid black; text-align: center; vertical-align: middle;"><tr><td style="width: 15px; height: 15px;"> </td><td style="width: 15px; height: 15px;"> </td><td style="width: 15px; height: 15px;"> </td><td style="width: 15px; height: 15px;"> </td></tr></table> There will always be one left over ■ <table style="display: inline-table; border: 1px solid black; text-align: center; vertical-align: middle;"><tr><td style="width: 15px; height: 15px;"> </td><td style="width: 15px; height: 15px;"> </td><td style="width: 15px; height: 15px;"> </td><td style="width: 15px; height: 15px;"> </td><td style="width: 15px; height: 15px;"> </td></tr></table> so it will be odd 										<p>✓ <i>Minimally acceptable explanation</i> eg</p> <ul style="list-style-type: none"> ♦ You will always add an odd to an even ♦ $\text{Even} + \text{odd}$ ♦ The result is always odd <p>✗ <i>Incomplete explanation that does not infer addition</i> eg</p> <ul style="list-style-type: none"> ♦ It goes odd, even, odd, even ... <p>✗ <i>Incorrect statement accompanying a correct statement</i> eg</p> <ul style="list-style-type: none"> ♦ You will always add an odd to an even and sometimes that gives you an odd number and sometimes it is even

U1

This page may be used for your own notes

Year 7 progress test in mathematics 2003

Mental mathematics

Mark scheme

Time: 5 seconds

1	90	
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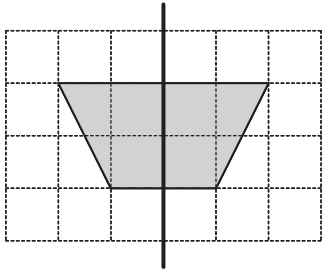
2	$2 < \text{answer} < 3$	
---	-------------------------	--

3	28	
---	----	--

4	9(.0)	
---	-------	--

5	7	
---	---	--

Time: 10 seconds

6		Accept lines not drawn accurately, provided the pupil's intention is clear
---	--	--

7	32	
---	----	--

8	5 packs	Ignore reference to the number of cans that are left, eg, accept 5 r2
---	---------	---

9	Any two numbers with a difference of 3	
---	--	--

10	6 (:00) pm	Accept unambiguous time, eg 18:00 Do not accept incorrect time, eg 6(:00) am
----	------------	---

11	1995	Do not accept responses given in words
----	------	--

12	75 %	Do not accept equivalent fractions or decimals
----	------	--

13	4	Ignore other numbers shown, eg, accept 6 r4, 36 r4
----	---	--

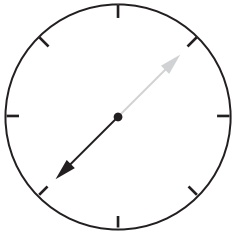
14	18	
----	----	--

Time: 15 seconds

15	19 games	
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19	Any square or rectangle with area 4	
-----------	--	--

20	27, 81	Accept in either order Ignore subsequent terms given
-----------	---------------	---

16		<p>Accept inaccurate arrows, provided the pupil's intention is clear</p> <p>Accept only the correct point on the circumference marked</p>
-----------	--	---

17	8 cm	
-----------	-------------	--

18	£0.70 or 70p	Do not accept with units incorrect or omitted
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