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YEAR 7 PROGRESS

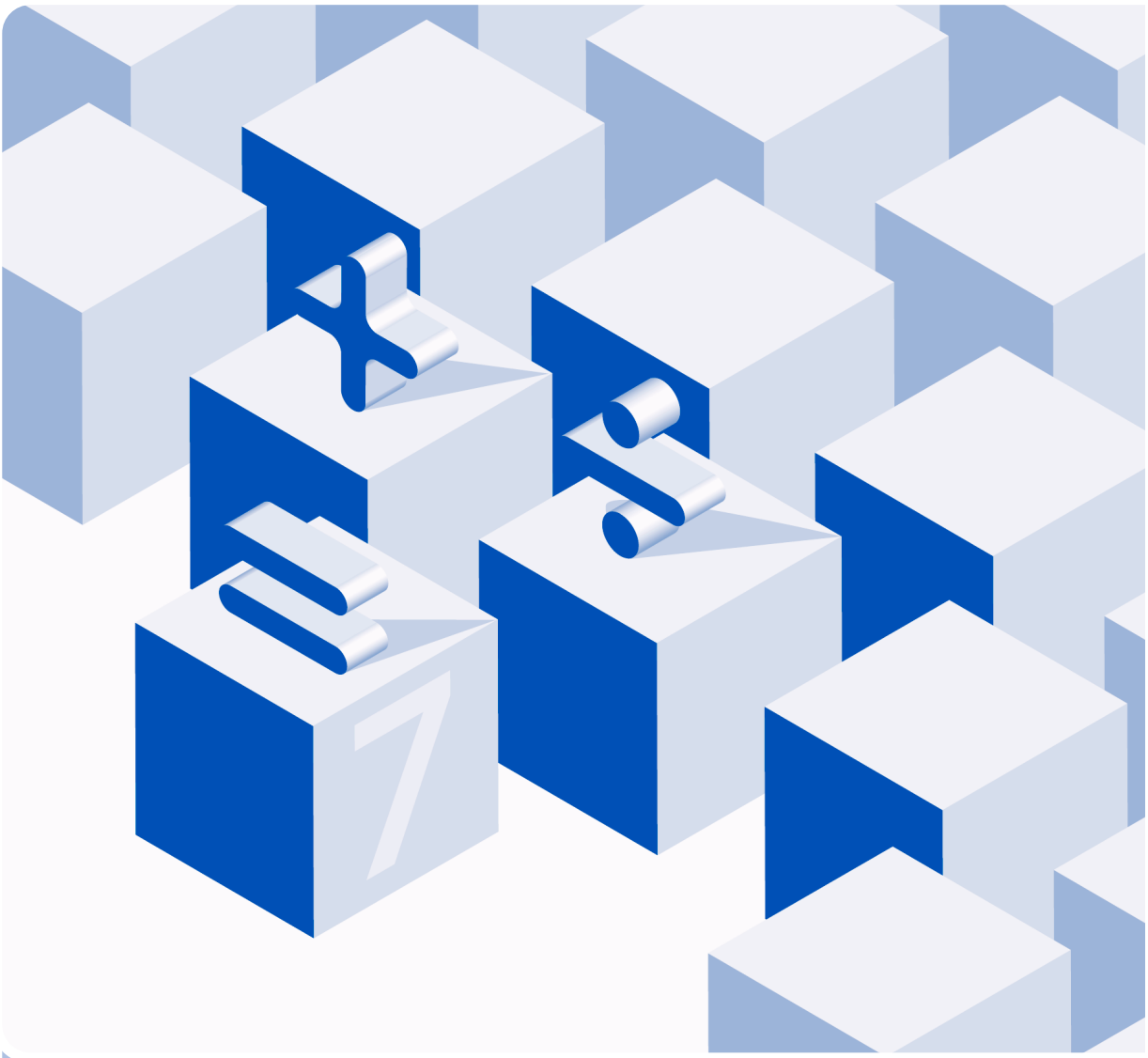
LEVELS 3–4

2007

Mathematics tests

Mark schemes

for Paper 1, Paper 2 and Mental mathematics



National curriculum assessments

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Qualifications and Curriculum Authority
83 Piccadilly
London W1J 8QA
www.qca.org.uk

Contents

Introduction

The test papers will be marked by external markers. The markers will apply the mark schemes in this booklet, which are provided here to inform teachers.

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

The structure of the mark schemes for Paper 1 and Paper 2

The marking information for questions in the written tests is set out in the form of tables, which start on page 13 (Paper 1) and page 25 (Paper 2) of this booklet. The two columns on 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.

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. The *U* number can be any whole number from 1 to the number of marks in the question.

The 2007 year 7 progress mathematics tests and mark schemes were developed by the Test Development Team at Edexcel.

General guidance

Using the mark schemes

Answers that are numerically equivalent or algebraically equivalent are acceptable unless the mark schemes state 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 specifically to the marking of questions that involve money, negative numbers, algebra, time or coordinates. Unless otherwise specified in the mark schemes, markers should apply the following guidelines in all cases.

What if …

The pupil's response does not match closely any of the examples given.	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**.
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, is acceptable. Provided there is no ambiguity, condone the continental practice of using a comma for a decimal point.
The pupil has made a conceptual error.	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.
The pupil's accuracy is marginal according to the overlay provided.	Overlays can never be 100% accurate. However, provided the answer is within, or touches, the boundaries given, the mark(s) should be awarded.
The pupil's answer correctly follows through from earlier incorrect work.	Follow through marks may be awarded only when specifically stated in the mark schemes, 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.
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. 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.
The correct answer is in the wrong place.	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.

What if …

<table>
<tr><td rowspan="5">The final answer is wrong but the correct answer is shown in the working.</td><td colspan="2">Where appropriate, detailed guidance will be given in the mark schemes and must be adhered to. If no guidance is given, markers will need to examine each case to decide whether:</td></tr>
<tr><td>■ the incorrect answer is due to a transcription error</td><td>If so, award the mark.</td></tr>
<tr><td>■ in questions not testing accuracy, the correct answer has been given but then rounded or truncated</td><td>If so, award the mark.</td></tr>
<tr><td>■ the pupil has continued to give redundant extra working which does not contradict work already done</td><td>If so, award the mark.</td></tr>
<tr><td>■ the pupil has continued, in the same part of the question, to give redundant extra working which does contradict work already done.</td><td>If so, do not award the mark. Where a question part carries more than one mark, only the final mark should be withheld.</td></tr>
<tr><td>The pupil's answer is correct but the wrong working is seen.</td><td colspan="2">A correct response should always be marked as correct unless the mark schemes state otherwise.</td></tr>
<tr><td>The correct response has been crossed or rubbed out and not replaced.</td><td colspan="2">Mark, according to the mark schemes, any legible crossed or rubbed out work that has not been replaced.</td></tr>
<tr><td>More than one answer is given.</td><td colspan="2">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 schemes. If both correct and incorrect responses are given, no mark should be awarded.</td></tr>
<tr><td>The answer is correct but, in a later part of the question, the pupil has contradicted this response.</td><td colspan="2">A mark given for one part should not be disallowed for working or answers given in a different part, unless the mark schemes specifically state otherwise.</td></tr>
</table>

Marking specific types of question

Responses involving money

For example: £3.20 £7

Accept ✓	Do not accept ✗
✓ 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	✗ Incorrect or ambiguous indication of the amount eg £320, £320p or £700p
✓ The unit, £ or p, is usually printed in the answer space. Where the pupil writes an answer outside the answer space with **no** units, accept responses that are unambiguous when considered alongside the given units eg with £ given in the answer space, accept 3.20, 7 or 7.00	✗ Ambiguous use of units outside the answer space eg with £ given in the answer space, do not accept 3.20p outside the answer space
✓ Given units amended eg with £ crossed out in the answer space, accept 320p, 700p	✗ 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

Responses involving negative numbers

For example: –2

Accept ✓	Do not accept ✗
	To avoid penalising the error below more than once within each question, do not award the mark for the *first* occurrence of the error within each question. Where a question part carries more than one mark, only the final mark should be withheld. ✗ Incorrect notation eg 2–

Responses involving the use of algebra

For example: $2 + n$ $n + 2$ $2n$ $\frac{n}{2}$ n^2

Accept ✓	Take care ! Do not accept ✗
✓ Unambiguous use of a different case or variable eg N used for n x used for n	! Unconventional notation eg $n \times 2$ or $2 \times n$ or $n2$ or $n + n$ for $2n$ $n \times n$ for n^2 $n \div 2$ for $\frac{n}{2}$ or $\frac{1}{2}n$ $2 + 1n$ for $2 + n$ $2 + 0n$ for 2 Within a question that demands simplification, do not accept as part of a final answer involving algebra. Accept within a method when awarding partial credit, or within an explanation or general working.
	✗ Embedded values given when solving equations eg in solving $3x + 2 = 32$, $3 \times 10 + 2 = 32$ for $x = 10$ To avoid penalising the two types of error below more than once within each question, do not award the mark for the *first* occurrence of each type within each question. Where a question part carries more than one mark, only the final mark should be withheld.
✓ Words used to precede or follow equations or expressions eg $t = n + 2$ tiles or tiles = $t = n + 2$ for $t = n + 2$	! Words or units used within equations or expressions eg n tiles + 2 n cm + 2 Do not accept on their own. Ignore if accompanying an acceptable response.
✓ Unambiguous letters used to indicate expressions eg $t = n + 2$ for $n + 2$	✗ Ambiguous letters used to indicate expressions eg $n = n + 2$ for $n + 2$

Responses involving time

A time interval *For example: 2 hours 30 mins*

Accept ✓	Take care ! Do not accept ✗
✓ Any unambiguous indication eg 2.5 (hours), 2h 30 ✓ Digital electronic time ie 2:30	✗ Incorrect or ambiguous time interval eg 2.3(h), 2.30, 2-30, 2h 3, 2.30 min ! The unit, hours and/or minutes, is usually printed in the answer space. Where the pupil writes an answer outside the answer space, or crosses out the given unit, accept answers with correct units, unless the question has specifically asked for other units to be used.

A specific time *For example: 8:40 am 17:20*

Accept ✓	Do not accept ✗
✓ Any unambiguous, correct indication eg 08.40, 8.40, 8:40, 0840, 8 40, 8-40, twenty to nine, 8,40 ✓ Unambiguous change to 12 or 24 hour clock eg 17:20 as 5:20 pm, 17:20 pm	✗ Incorrect time eg 8.4 am, 8.40 pm ✗ Incorrect placement of separators, spaces, etc or incorrect use or omission of 0 eg 840, 8:4:0, 084, 84

Responses involving coordinates

For example: (5, 7)

Accept ✓	Do not accept ✗
✓ Unconventional notation eg (05, 07) (five, seven) $\overset{x}{5}, \overset{y}{7}$ ($x = 5, y = 7$)	✗ Incorrect or ambiguous notation eg (7, 5) $\overset{y}{7}, \overset{x}{5}$ ($5x, 7y$) ($5^x, 7^y$) ($x - 5, y - 7$)

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 NAA website *www.naa.org.uk/tests* from Monday 25 June 2007. NAA will also send a copy to each school in July 2007.

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.

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Mark scheme for Paper 1

Question		Recycling	
1		**Correct response**	**Additional guidance**
a	**1m**	3	
b	**1m**	Supermarket C	✓ *Unambiguous indication* eg, for part (b) ◆ C
c	**1m**	Supermarket A	

Question		Three numbers	
2		**Correct response**	**Additional guidance**
a	**1m**	40	
b	**1m**	18	
c	**1m**	Shows a calculation that uses all three numbers to give an answer of 10 eg ■ 25 – (7 + 8) ■ 25 – 7 – 8 ■ 25 –7 –8 10 ■ 25 – 7 = 18 18 – 8	✓ ***Minimally acceptable calculation that is completed using more than one step*** eg ◆ 7 and 8 add to 15, then 25 – 15 ◆ 7 and 8, then take it away from 25 ✓ ***Value(s) used more than once*** Condone provided the calculation is correct and gives an answer of 10 eg ◆ 25 – (8 + 8 – 7 ÷ 7) = 10 ! ***Other numerical examples given alongside a correct response*** Ignore even if incorrect ! ***Poor layout of calculation*** As this is a level 3 mark, condone provided the pupil's intention is clear eg, accept ◆ 25 – 8 = 17 – 7 = 10 ◆ 25 7 –8 10 × ***Calculation is correct, but the answer of 10 is embedded*** eg ◆ 7 + 8 = 15 15 + 10 = 25 × ***Incomplete or incorrect calculation*** eg ◆ 18 – 8 ◆ 17 – 7 ◆ 25 – 15 ◆ 25 7 8 10 ◆ 25 – 7 + 8 ◆ 7 + 8 = 15 15 – 25 = 10 ◆ 7 and 8, then take away 25 ◆ 25 – 7 – 8 = *18 (error)*
	U1		

Question			Fruit
3		**Correct response**	**Additional guidance**
a	**1m** (U1)	20p	
b	**1m**	6	**!** *Reference to remainder* Condone reference to the correct amount of money left over eg, accept ◆ 6 and 10p left over ◆ 6 r 10 eg, do not accept ◆ 6.(…) ◆ 6 and 6p left over

Question		Sequence	
4		**Correct response**	**Additional guidance**
	1m	Gives 30 in the top row	
	1m	Gives 19 in the bottom row	

Question		Cakes	
5		**Correct response**	**Additional guidance**
	1m	16	

Question		Calculations	
6		**Correct response**	**Additional guidance**
	1m	409	
	1m	73	
	1m	370	
	1m	126	

Question		True or false	
7		**Correct response**	**Additional guidance**
	1m	Makes all three correct decisions, ie True False ✓ ☐ ☐ ✓ ☐ ✓ ✓ ☐	! *Other indication* Accept any unambiguous indication but do not accept blanks for false

Question		How much bigger?	
8		**Correct response**	**Additional guidance**
a	**1m** (U1)	4	× *Incomplete processing* eg, for part (a) • 47 – 43 eg, for part (b) • 1 × 9 • One more 9
b	**1m** (U1)	9	

Question		Fractions	
9		**Correct response**	**Additional guidance**
	1m	8	× *Incomplete processing* eg, for the first mark • 5 + 3
	1m	4	! *For the second mark, follow through* Accept follow through as their value for the first mark ÷ 2

Question		Vertices	
10		**Correct response**	**Additional guidance**
a	**1m**	6	
b	**1m** U1	Indicates only the correct shape, ie square pyramid cylinder (cube) rectangle	

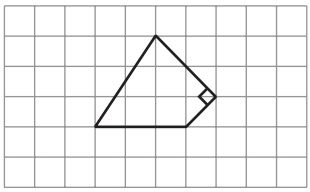
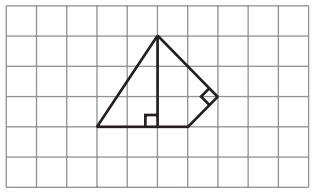
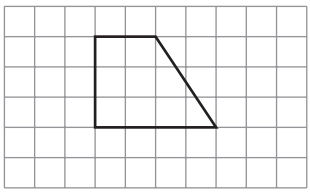
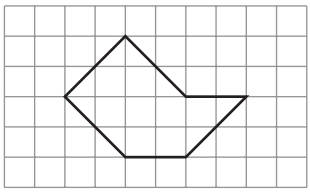
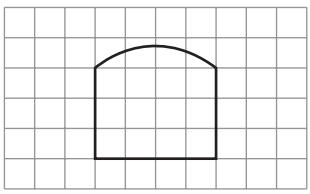
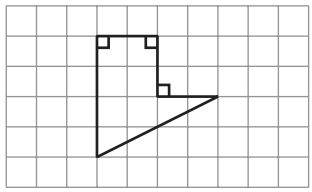
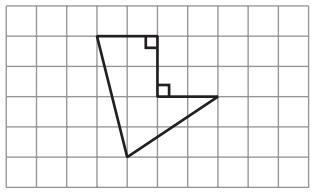
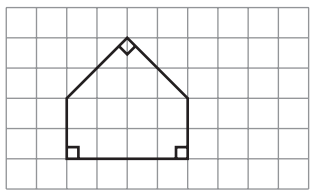
Question		Which number?	
11		**Correct response**	**Additional guidance**
a	**1m** U1	Indicates 68 and gives a correct explanation eg ■ 68 is 32 away but 133 is 33 away ■ 100 – 68 is 1 less than 133 – 100 ■ You count 3 tens away from 100, then 3 units more for 133, but only 2 units more for 68 ■ 133 is 33 away from 100 and 68 + 33 = 101, so 68 must be closer ■ 133 – 68 = 65, and 33 is more than half of 65	✓ *Minimally acceptable explanation* eg ◆ 32 seen ◆ 1 closer ◆ 1 less ◆ 1 out ◆ By 1 ◆ 133 – 100 = 33, 68 + 33 = 101 ◆ 33 is more than half of 65 ◆ 32 is less than half of 65 ! *Incorrect mathematical statement alongside a correct response* Condone × *Incomplete explanation* eg ◆ 33 is a bigger gap than the other one ◆ 100 – 68 is less than 133 – 100 ◆ 68 is closer
b	**1m**	Indicates the correct number, ie –5 (16) –9 0	
c	**1m**	Indicates the correct number, ie 1.4 (1.35) 0 1.65	

Question		Street lights	
12		**Correct response**	**Additional guidance**
a	**1m**	Belfast	✓ *Unambiguous indication* eg ◆ B
b	**1m**	10	
c	**1m**	5:50	✓ *Indication of am repeated* eg ◆ 5:50 am ◆ 05:50

Question		Write a number	
13		**Correct response**	**Additional guidance**
a	**1m**	Gives a number that is both greater than 10 and a multiple of 4 eg ■ 12 ■ 16 ■ 40 ■ 140	
b	**1m**	Gives a number that is both greater than 10 and a square number eg ■ 16 ■ 25 ■ 100	

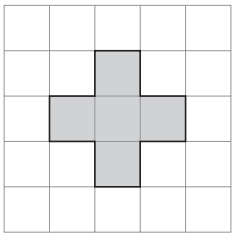
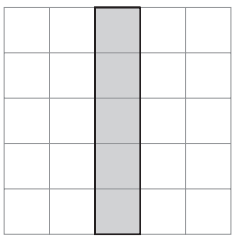
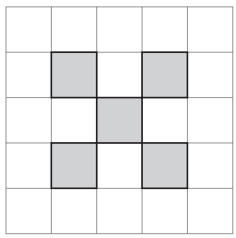
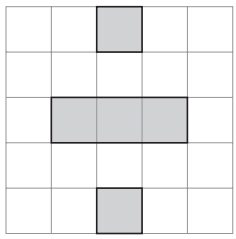
Question		Temperature chart	
14		**Correct response**	**Additional guidance**
a	**1m**	38.5 or equivalent	
b	**1m**	Indicates the point (16, 36.7) on the graph correctly	✓ *Unambiguous indication* eg • Correct point indicated by the top of a vertical line and/or the end of a horizontal line ! *Inaccurate indication* Accept provided the point marked is closer to (16, 36.7) than any other grid intersection ! *Joins point to the rest of the graph* Ignore even if incorrect or using a solid line ! *Joins point(s) to the x- or y-axis with a line* Ignore

Question		Pets	
15		**Correct response**	**Additional guidance**
a	**1m**	55	
b	**1m**	5	× *Incorrect use of % sign* eg • 5%

Question		Right angles	
16		**Correct response**	**Additional guidance**
a	**1m**	Indicates the right angle on the shape eg ▪ 	✓ *Unambiguous indication* ! *Extra line(s) added to shape to create additional right angle(s)* Ignore alongside a correct response but do not accept alone eg, accept ◆  × *Incorrect angle labelled as a right angle*
b	**1m**	Draws a shape that has exactly two right angles eg ▪  ▪  ▪ 	! *Lines not ruled or accurate* Accept provided the pupil's intention is clear ! *Right angles marked* Ignore, even if incorrect or ambiguous ! *Shape with exterior right angle(s)* Ignore exterior right angles and count only interior right angles towards the correct total of two eg, accept ◆  eg, do not accept ◆  × *Shape with more than two right angles* eg ◆ 
	U1		

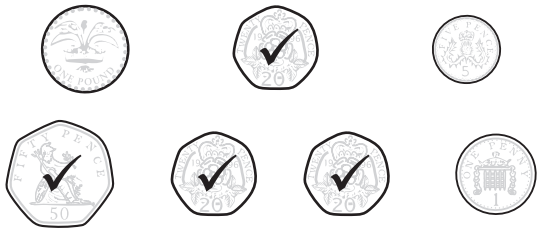
Question		Number sequence	
17		**Correct response**	**Additional guidance**
	1m U1	Gives all three correct numbers in the correct order, ie 7 11 15	

Question		Equation	
18		**Correct response**	**Additional guidance**
	1m	Indicates No and gives a correct explanation The most common correct explanations:	! *Response contains an incorrect statement* Ignore alongside a correct response eg, accept ◆ x must be 70 because 70 + 30 = 100, also 130 + 30 = 60 ◆ If you do 130 + 30 you get 160, and x must be 60 ◆ x = 100 – 30 = 90
		State or imply that x = 70 eg ■ x must be 70 because 70 + 30 = 100	✓ *Minimally acceptable explanation* eg ◆ 70 seen ◆ x = 100 – 30
		Show or imply the contradiction if x = 130 ■ If x = 130, then the sum would give 160 not 100 ■ 130 + 30 = 160 so it can't be right ■ Because 130 + 30 does not equal 100	✓ *Minimally acceptable explanation* eg ◆ It would give 160 × *Incomplete explanation* eg ◆ It's 160 ◆ If x was 130, you would get a different answer, not 100
		State or imply that the value of x must be less than 100 ■ You add 30 to it to get 100, so the number must be smaller than 100	✓ *Minimally acceptable explanation* eg ◆ The number can't be bigger than 100 ◆ Should be less than 100
		Show or imply that x = 130 would be a solution of the equation x – 30 = 100 ■ 130 – 30 = 100, not 130 + 30	✓ *Minimally acceptable explanation* eg ◆ 130 – 30 = 100 ◆ It's take away 30, not add ◆ 130 would work if you were taking away, but this one is adding
		Address the misconception ■ He has added 30 to 100 but he should have taken it away	✓ *Minimally acceptable explanation* eg ◆ It's take away 30, not add ◆ Should have taken away
	U1		

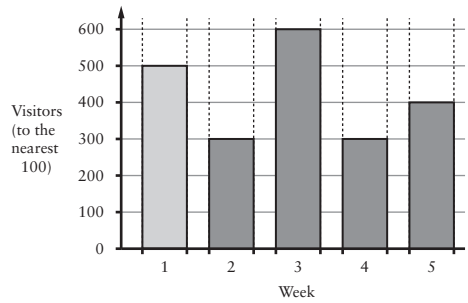
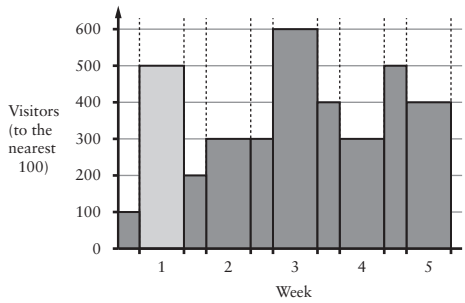
Question		Symmetry	
19		**Correct response**	**Additional guidance**
	1m	Draws a shape using 5 square tiles with more than one line of symmetry eg ■  ■ 	! *Squares not shaded* Accept provided the pupil's intention is clear ! *Line(s) of symmetry drawn* Ignore, even if incorrect ! *Pattern drawn with squares not joined side to side* Condone providing the pattern has more than one line of symmetry eg, accept ◆  ◆  × *Pattern uses part-squares*

Question		Weighing a dog	
20		**Correct response**	**Additional guidance**
	1m (U1)	15.6 or equivalent	

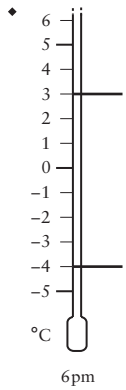
Mark scheme for Paper 2

Question		Coins	
1		**Correct response**	**Additional guidance**
	1m	Indicates the correct four coins, ie 	✓ *Unambiguous indication*

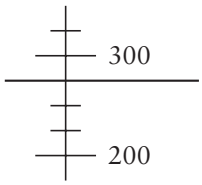
Question		Finding fractions	
2		**Correct response**	**Additional guidance**
	1m	$\frac{1}{2}$ or equivalent fraction	× *Equivalent decimals or percentages*

Question		Museum	
3		**Correct response**	**Additional guidance**
a	**1m**	Rounds all four numbers correctly, ie 300 600 300 400	! *Part (a) omitted, but part (b) completed correctly with rounded values* Award the mark for part (a)
b	**2m**	Completes all four bars correctly, ie  	✓ *For 2m, bars not shaded* ! *For 2m or 1m, follow through from part (a)* Accept correct bars using their (non-zero) values from the table in part (a) provided the pupil's intention is clear ! *Bars not of correct width, or not ruled/accurate* Accept provided the pupil's intention is clear, and the heights of the bars are clearly marked
	or **1m**	Completes at least two bars correctly or Completes all four bars correctly using the given values from the table in part (a)	! *Additional bars indicated* For 2m or 1m, accept only if unambiguous eg, do not accept 

Question		Measures	
4		**Correct response**	**Additional guidance**
a	**1m**	Indicates 2 metres, ie ☐ ☐ ☑ 2 metres ☐	
b	**1m**	Indicates 14 centimetres, ie ☐ ☑ 14 centimetres ☐ ☐	
c	**1m**	Indicates 64 kilometres, ie ☐ ☐ ☐ ☑ 64 kilometres	

Question		Thermometer	
5		**Correct response**	**Additional guidance**
a	**1m**	5	
b	**1m**	Indicates –4 on the scale	! *Inaccurate indication* Accept provided the pupil's intention is clear ! *Shading incorrect or omitted* Condone provided the correct value is clearly indicated on the scale Where an additional value is also indicated, accept only if this value is 3 eg, accept 

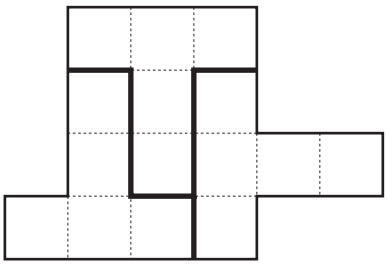
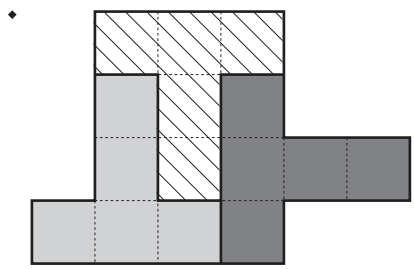
Question		Number grid	
6		**Correct response**	**Additional guidance**
a	**1m**	30	
b	**1m** U1	65	

Question		Cake mix	
7		**Correct response**	**Additional guidance**
a	**1m**	Indicates 275ml correctly on the scale, ie 	! *Inaccurate indication* Accept provided their indication is within 2mm of the correct marker
b	**1m**	750	
c	**1m**	5:30	! *Indication of pm repeated* eg • 17:30 Condone

Question		Number line	
8		**Correct response**	**Additional guidance**
	1m	7.2 or equivalent	

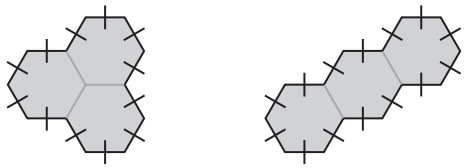
Question		Sugar	
9		**Correct response**	**Additional guidance**
a	**1m**	18	
b	**1m**	Indicates the correct drawing, ie ✓	

Question		Multiplying	
10		**Correct response**	**Additional guidance**
a	**1m**	24	
b	**1m** U1	Gives two numbers greater than 10 with a product of 312 eg ▪ 26 × 12 ▪ 13 × 24 ▪ 15 × 20.8 ▪ 20 × 15.6	✓ *Fractions or decimals* ! *Value(s) rounded* Condone values rounded or truncated to at least 1 decimal place eg, accept ◆ 11 × 28.3(…) (or 28.4)

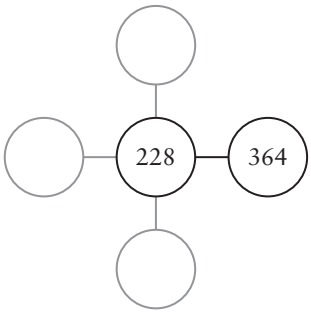
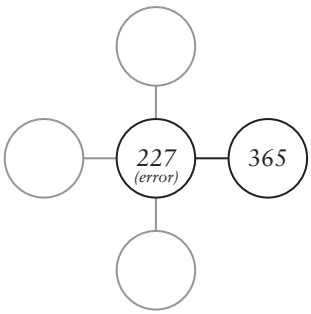
Question		T-shapes	
11		**Correct response**	**Additional guidance**
a	**1m**	Shows how the three T-shapes fit together, ie 	✓ *Unambiguous indication* eg  ! *Lines not ruled or accurate* Accept provided the pupil's intention is clear
b	**1m**	15	

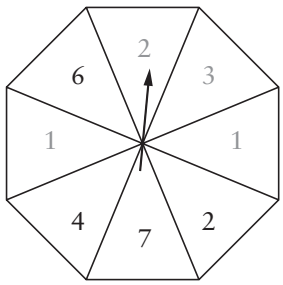
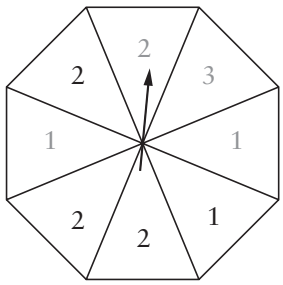
Question		Triangle	
12		**Correct response**	**Additional guidance**
a	**1m**	7.5 ± 0.2	✓ *Equivalent fractions or decimals*
b	**1m**	40 ± 2	

Question		Fraction wall	
13		Correct response	Additional guidance
	1m	Gives the correct numerator, ie $\frac{6}{6}$	
	1m	Gives the correct numerator, ie $\frac{3}{6}$	
	1m	Gives the correct numerator, ie $\frac{2}{3}$	

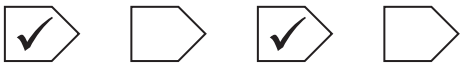
Question		Hexagon tiles	
14		**Correct response**	**Additional guidance**
a	**1m**	10	
b	**1m**	Indicates A and gives a correct explanation The most common correct explanations:	
		Compare the perimeters of A and B eg ▪ A's perimeter is 12cm, but B's is 14cm ▪ A's perimeter is 2 less than B's ▪ A has 12 vertices, B has 14 vertices	✓ *Minimally acceptable explanation* eg ◆ 12, 14 ◆ 18 – 6, 18 – 4 ◆ 2 less ◆ A has 9 corners sticking out, B has 10 ◆ 
			! *Incorrect units given* Ignore
			× *Incomplete or incorrect explanation* eg ◆ A is 12 ◆ A is less than B ◆ I counted them and A has a smaller perimeter ◆ A is 12 but B is 15 ◆ I counted the edges ◆ I measured the lines ◆ B has more sides
		Show or imply the difference in the number of touching edges eg ▪ In A, 6 sides are on the inside but B only has 4 ▪ 3 sides meet in A but only 2 in B ▪ In A all three shapes have 2 meeting sides, but in B only two shapes have 1 meeting side ▪ A has 1 more pair of touching sides ▪ 2 more sides are hidden for A ▪ They are both made of 3 hexagons, but A is more compact and B is more stretched out	✓ *Minimally acceptable explanation* eg ◆ More sides are together ◆ 6 in A and 4 in B ◆ A has 3 lines and B has 2 lines ◆ I counted the touching edges ◆ It is fatter ◆ More bunched up ◆ B is more spread out ◆ B is longer (or thinner)
			× *Incomplete or incorrect explanation* eg ◆ In A, 6 sides are on the inside ◆ 6 sides meet in A but only 2 in B ◆ Shape A looks smaller than shape B ◆ Shape A has more edges missing
	U1		

Question		Starlings	
15		**Correct response**	**Additional guidance**
a	**1m**	9	
b	**1m**	5	
c	**1m**	5	

Question		Making 678	
16		**Correct response**	**Additional guidance**
	2m	Gives both correct values, ie  	
	or		
	1m	Gives the value 228 or Makes an error in calculating 228 but follows through correctly so that their two values have a sum of 592 ▪  	
	U1		

Question		Spinner	
17		**Correct response**	**Additional guidance**
	1m	Gives one odd number and three even numbers in the blank sections of the spinner eg ▪  ▪  	✓ *Negative odd and even numbers* ✓ *Zero as an even number* × *Section(s) of the spinner left blank*

Question		Shampoo	
18		**Correct response**	**Additional guidance**
	2m	£ 1.56	
	or		
	1m	Shows the digits 156 or Shows the values 2.78 or 278 and 4.34 or 434 or Shows the value 3.44 or 344 or Shows a complete correct method with not more than one computational error eg ▪ (5 – 0.66) – (1.99 + 0.79) ▪ £1.99 + 79p + 66p = *£3.45 (error)* *£5 – £3.45 = £1.55*	**!** ***Inconsistent units*** Within an otherwise correct method, condone eg, for 1m accept ◆ (5 – 66) – (1.99 + 79)
	(U1)		

Question		Rules	
19		**Correct response**	**Additional guidance**
a	**1m**	Indicates the two correct rules + 3 and × 3, ie 	✓ *Unambiguous indication*
b	**1m**	Gives a correct rule eg ▪ – 5 ▪ Minus 5 ▪ ÷ 2 ▪ Halve ▪ Take half of the first number away ▪ + 5 ÷ 3	✓ *Minimally acceptable rule* eg ◆ Half ◆ $\frac{1}{2}$ ◆ $-\frac{1}{2}$ × *Inverse rule* eg ◆ + 5 ◆ × 2
	1m U1	Gives a different correct rule from any previously credited	× *Same rule expressed in a different way* eg, with – 5 given for the first mark ◆ – 2 then – 3 ◆ + 5 then – 10 eg, with ÷ 2 given for the first mark ◆ Halve ◆ × 2 then ÷ 4

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Transcript and mark scheme for the mental mathematics test

General guidance for markers

Please note that pupils should not be penalised if they record any information given in the question or show their working. Ignore any annotation, even if in the answer space, and mark only the answer. Accept an unambiguous answer written in the stimulus box, or elsewhere on the page but clearly attributable to the relevant question.

General guidance for marking the written tests (pages 5–11) also applies to marking the mental mathematics test. In addition, please apply the following principles unless specific instructions to the contrary are given in the mark scheme:

- accept responses in words and/or figures,
  eg 7 point 3, 4 hundred
- accept any unambiguous indication of the correct response from a given list,
  eg circling, ticking, underlining
- accept unambiguous misspellings
- accept units that have been correctly converted to a different unit provided the new unit is indicated. Where units have been given on the answer sheet, do not penalise pupils for writing the units again
- accept responses with commas as spacers,
  eg 50,000
  but do not accept a point used as a spacer,
  eg 50.000

Test questions

'Now we are ready to start the test.

For the first group of questions you will have 5 seconds to work out each answer and write it down.'

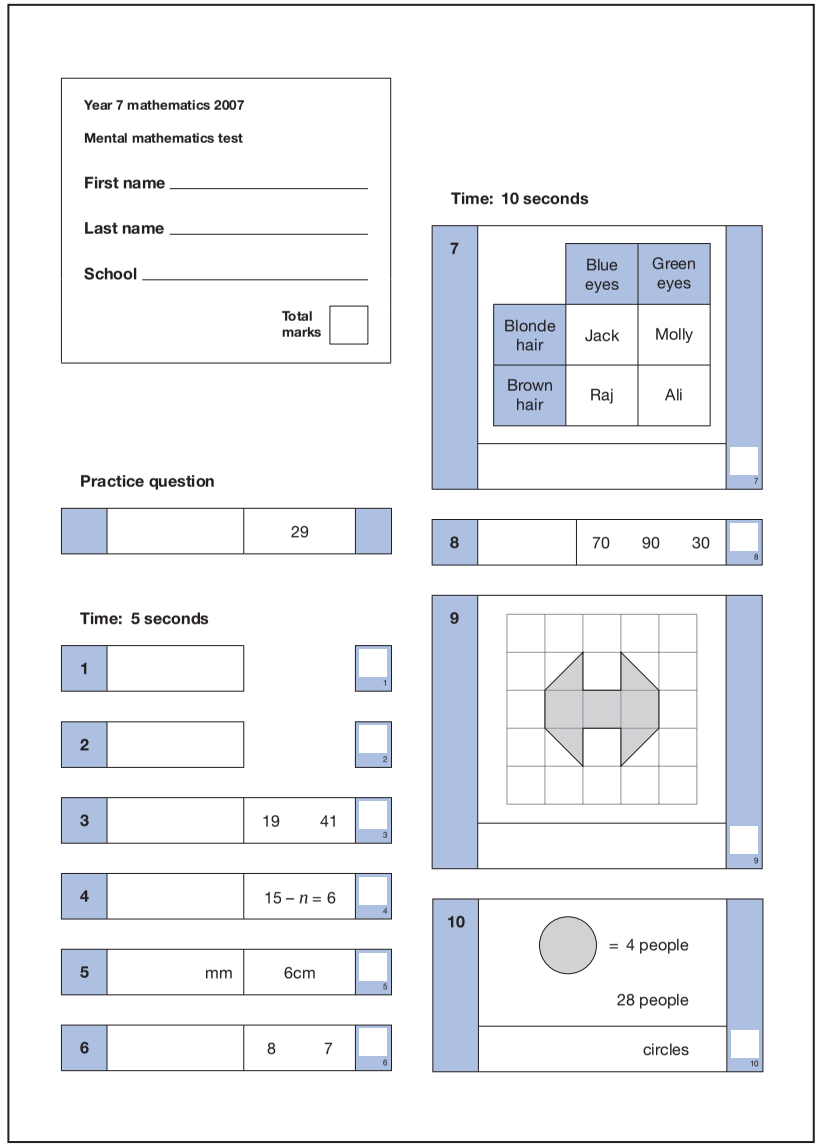
1	Write in figures the number four hundred and seven.
2	What is twenty-one divided by three?
3	Subtract nineteen from forty-one.
4	Look at the equation on your answer sheet. What is the value of n?
5	How many millimetres are there in six centimetres?
6	What is eight multiplied by seven?

'For the next group of questions you will have 10 seconds to work out each answer and write it down.'

7	The table on your answer sheet shows the colours of some people's hair and eyes. Which person has brown hair and green eyes?
8	Add together seventy, ninety and thirty.
9	Look at the shape drawn on the square grid. How many lines of symmetry does it have?
10	In a pictogram, one circle represents four people. How many circles will represent twenty-eight people?

'Now turn over your answer sheet.'

Pupil answer sheet

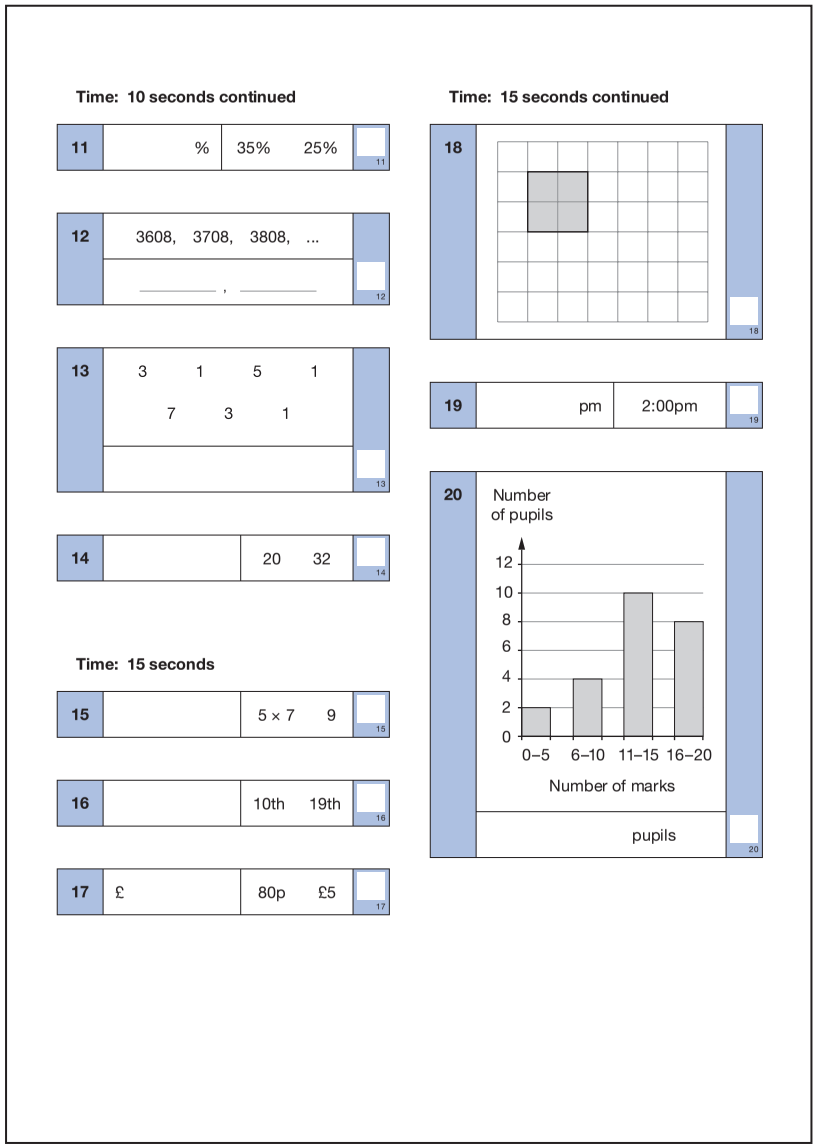


11	A pattern is made from red, blue and green squares. Thirty-five per cent of the squares are red. Twenty-five per cent of the squares are blue. What percentage of the squares are green?
12	The sequence of numbers on your answer sheet goes up in steps of one hundred. Write down the next two numbers in the sequence.
13	Look at the numbers on your answer sheet. What number is the mode?
14	What number is halfway between twenty and thirty-two?

'For the next group of questions you will have 15 seconds to work out each answer and write it down.'

15	Multiply five by seven and add nine.
16	If the tenth of October is a Wednesday, what day of the week is the nineteenth of October?
17	I buy two drinks at eighty pence each. I pay with a five pound note. How much change should I get?
18	Look at the shaded square drawn on the grid. On the grid, draw a different rectangle that has the same area as the square.
19	A tennis match started at two pm. It finished after one hundred and ten minutes. At what time did the tennis match finish?
20	The pupils in a class answered twenty maths questions. The bar chart shows their results. How many pupils scored more than half marks?

'Put your pens down. The test is finished.'



Year 7 progress test in mathematics 2007
Mental mathematics

Mark scheme

Time: 5 seconds

1	407	Do not accept responses given in words
2	7	
3	22	
4	9	Accept embedded values, eg 15 – 9 = 6 Do not accept –9
5	60 mm	Do not accept amended units
6	56	

Time: 10 seconds

7	Ali	Accept any unambiguous indication, eg A
8	190	
9	2	Accept correct lines of symmetry drawn on the shape provided unambiguous
10	7 circles	Accept 7 circles drawn

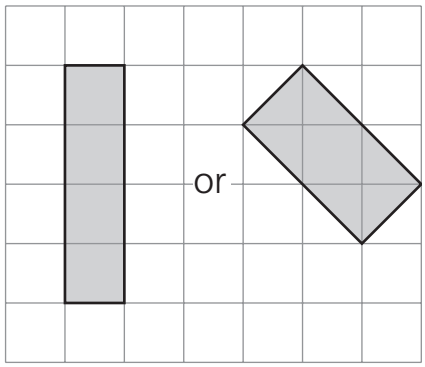
Time: 10 seconds continued

11	**40** %	Do not accept equivalent fractions or decimals
12	**3908** and **4008**	Accept pair in either order
13	**1**	Accept value(s) indicated in list
14	**26**	

Time: 15 seconds

15	**44**	
16	**Friday**	Accept any unambiguous indication, eg F
17	£ **3.40**	

Time: 15 seconds continued

18	Any rectangle (except a 2 by 2 square) with an area of 4 units, eg 	Accept correct rectangles using the edge of the grid as one or two of their sides
19	**3:50** pm	
20	**18** pupils	

National Assessment Agency

29 Bolton Street
London W1J 8BT
Telephone: 08700 60 60 40
Minicom: 020 7509 6546
Fax: 020 7509 5908
Email: tests@naa.org.uk
Website: www.naa.org.uk/tests

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