



OXFORD CAMBRIDGE AND RSA EXAMINATIONS
General Certificate of Secondary Education
MATHEMATICS B

J567/01

Paper 1 (Foundation Tier)

Additional Specimen Mark Scheme

The maximum mark for this paper is **100**.

This document consists of **10** printed pages.

Marking Instructions

1. Mark strictly to the mark scheme.
2. Make no deduction for omission of units except as indicated on the mark scheme.
3. Work crossed out but not replaced should be marked.
4. M (method) marks are not lost for purely numerical errors.
A (accuracy) marks depend on preceding M (method) marks. Therefore M0 A1 cannot be awarded.
B (independent) marks are independent of M (method) marks and are awarded for a correct final answer or a correct intermediate stage.
5. Subject to 4, two situations may be indicated on the mark scheme conditioning the award of A marks or independent marks:
 - Correct answer obtained without wrong working
 - Follows correctly from a previous answer whether correct or not (“ft”).
6. As a general principle, if two or more methods are offered, mark only the method that leads to the answer on the answer line. If two (or more) answers are offered, mark the poorer (poorest).
7. Always mark the greatest number of significant figures seen, even if this is then rounded or truncated on the answer line, unless the question asks for a specific degree of accuracy.
8. If the correct answer is seen in the body and the answer given in the answer space is a clear transcription error allow full marks unless the mark scheme says ‘mark final answer’ or ‘cao’. If the answer is missing but the correct answer is seen in the body allow full marks. If the correct answer is seen in the working but a completely different answer is seen in the answer space then accuracy marks for the answer are lost. Method marks would normally be given.
9. Where there is clear evidence of a misread, and this does not affect the nature or difficulty of the question, a penalty of 1 mark is generally appropriate. This may be achieved by awarding M marks but not an A mark, or awarding one mark less than the maximum.
10. For methods not provided for in the mark scheme give as far as possible equivalent marks for equivalent work.
11. For answers scoring no marks, you must either award NR (no response) or 0, as follows:

Award NR if:

- Nothing is written at all in the answer space
- There is any comment which does not in any way relate to the question being asked (“can’t do”, “don’t know”, etc.)
- There is any sort of mark that is not an attempt at the question (a dash, a question mark, etc.)

Award 0 if:

- There is any attempt that earns no credit. This could, for example, include the candidate copying all or some of the question, or any working that does not earn any marks, whether crossed out or not.
12. Where a follow through (ft) mark is indicated on the mark scheme for a particular part question, you must ensure that you refer back to the answer of the previous part question.
 13. In cases where there is clear evidence that a calculator has been used in this paper, mark the script as normal and then raise an exception (suspected malpractice).
 14. Anything in the mark scheme which is in square brackets [...] is not required for the mark to be earned, but if present it must be correct.

Abbreviations

The following abbreviations are commonly found in GCSE Mathematics mark schemes.

- Where you see **oe** in the mark scheme it means **or equivalent**.
- Where you see **isw** in the mark scheme it means **ignore subsequent working**.
- Where you see **www** in the mark scheme it means **without wrong working**.
- Where you see **cao** in the mark scheme it means **correct answer only**.
- Where you see **soi** in the mark scheme it means **seen or implied**.
- Where you see **rot** in the mark scheme it means **rounded or truncated**.
- Where you see **seen** in the mark scheme it means that you should award the mark if that number/expression is seen anywhere in the answer space, including on the answer line, even if it is not in the method leading to the final answer.
- Where you see **figs 237**, for example, this means any answer with only these digits. You should ignore leading or trailing zeros and any decimal point e.g. 237000, 2·37, 2·370, 0·00237 would be acceptable but 23070 or 2374 would not

1	(a) 449	1	
	(b) 317	2	M1 for clear attempt at subtraction seen
	(c) 6·548	1	
	(d) $\bar{2}1$	1	
2	(a) $(\bar{5}, 4)$	1	
	(b) (i) Point plotted at $(\bar{1}, \bar{2})$	1	
	(ii) Right angled or scalene	1	
	(c) Correct reflection	1ft	Vertices at $(5, 4)$ $(5, \bar{2})$ $(1, \bar{2})$ or ft <i>their</i> ΔABC
3	(a) 4	1	
	(b) ☺ ☺ ☺	3	M2 for 60 – 54 soi by 6 Or M1 for 16 + 12 + 15 + 4 + 7 seen Or B1 for 53, 54, 55 or 56 seen
	(c) Hip Hop	2	M1 for 12
4	(a) 7·8 - 8·2	1	
	(b) 51 - 53	1	
	(c) Angle of 282 - 286° shown Distance of 7·3 – 7·7cm from Leester	1 1	Angle may be ‘marked off’ with a dash, or a long line drawn from Leester
5	$\bar{5}$	2	M1 for 3 – 8
6	(a) $\frac{3}{4} = \frac{9}{12} = \frac{36}{48}$	1 1	
	(b) $\frac{8}{100}$ 53% 0·6 $\frac{4}{5}$	2	B1 for first or last number correct

7	(a)	(i) metres	1	
		(ii) litres	1	
		(iii) kilograms	1	
	(b)	(i) 51.4	2	M1 for at least 6 values listed in order
		(ii) Hensford Dolphins because their range is smaller www	2	M1 for attempt at $67.9 - 43.8$ soi by 24.1
	(c)	(i) 9:20 am or 0920	1	Accept any correct form of time including omission of am, or time in words eg '20 past 9' Do not accept 9:20pm or '9:20 in the evening' etc
	(ii) 6 hours 45 minutes	2	Do not accept 6:45 M1 for conversion to 16:25 seen Or B1 for "6 hrs XX min" or "X hrs 45 min"	
8	(a)	$\frac{7}{15}$ oe fraction	1	
	(b)	12 squares shaded	1	
	(c)	(i) $\frac{1}{2}$ oe fraction (eg $\frac{50}{100}$)	1	
		(ii) 0.25	1	
		(iii) 20 cao	1	

9	(a)	SS SV SC VS VV VC CS CV CC	2	B1 for 6 correct combinations, ignoring errors/repeats
	(b)	(i) $\frac{5}{9}$	1ft	ft <i>their</i> table
		(ii) 0	1	Condone $\frac{0}{9}$
	(c)	$\frac{1}{3}$	2	M1 for $\frac{3}{9}$
10	(a)	Cylinder Cone	1 1	
	(b)	Correct cuboid	2	Any orientation Condone hidden edges only if all correct B1 for one correct face
11		Correct enlargement	2	B1 for 2 lines correct
12 *		<p><u>Fully correct and fully justified choice of Safety storage container.</u> Useable space is 9 m³ for Safety and 8.4 m³ for Wonder, though this need not be explicitly stated if supporting calculations and answers are correct</p> <p><u>Correct method to calculate 90% of Safety container and 70% of the volume of Wonder container</u> where, if method was followed without any errors, it would lead to the correct useable volumes <u>but no comparison of volumes</u> (or decision)</p> <p>Correct use of volume with one error</p> <p>No relevant calculations or working, or simply a decision (with no working or volumes shown).</p>	6-5 4-3 2-1 0	<p>For the lower mark, there may be <u>one minor slip in the arithmetic but method complete with a justified choice of Safety storage container.</u></p> <p>Or <u>completely correct method and answers but poorly expressed</u> decision.</p> <p>For the lower mark, <u>one correct storage volume and an incomplete method for the other</u> with or without decision</p> <p>For the lower mark, a well expressed solution but with 2 distinct errors</p>

13	\checkmark \checkmark \checkmark \times \times \checkmark \times \checkmark \checkmark	3	B1 for each row correct
14	(a) $\frac{7}{20}$ oe fraction eg $\frac{14}{40}$	2	M1 for a common denominator and at least one numerator correct
	(b) $5\frac{5}{12}$	3	M1 for $\frac{13}{4}$ <u>and</u> $\frac{5}{3}$ M1 for $\frac{65}{12}$
15	(a) (i) 5	1	
	(ii) 6	1	
	(iii) 5	2	M1 for $4x = 18 + 2$ oe
	(iv) 15	2	M1 for $4x = 60$
	(b) 24	2	M1 for 9 or 15 <i>seen</i>
	(c) $3x(x + 4y)$	2	M1 for 3x as factor or $3(x^2 + 4xy)$ or $x(3x + 12y)$
16	(a) £6.40 - £6.60	1	
	(b) (i) 5.2 8.8 16	1	
	(ii) Points plotted Correct line drawn	M1ft A1	ft <i>their table</i> Correct line only
	(c) Ready To Go by £0.60 to £0.80 (or 60p to 80p)	2	ft <i>their</i> Ready To Go line M1 for reading from mileage 9 implied by 15.50 or 14.80 <i>seen</i>

17	<p>(a) $\angle CDA$ drawn as $53^\circ (\pm 2^\circ)$ <u>and</u> DA drawn as $5\text{ cm } (\pm 0.1\text{ cm})$ $\angle ADC$ drawn as $76^\circ (\pm 2^\circ)$ AB completed, from correct A, with $\angle DAB$ drawn as $127^\circ (\pm 2^\circ)$</p>	<p>1 1 2dep</p>	<p>Dependent on first two marks earned M1 for $\angle DAB = 180 - 53 [= 127^\circ]$ so or for a recognisable attempt to construct a line parallel to CD at A</p>
	<p>(b) <i>Their</i> \perp height measured $\pm 0.1\text{ cm}$</p> $\frac{\textit{their } AB + 12}{2} \times \textit{their } \perp \text{ height}$ <p>40 cm^2</p>	<p>1 1 1ft 1</p>	<p>In a correct drawing this is $4\text{ cm } (\pm 0.1)$ This mark can be earned through use of the measured \perp height in the formula In a correct drawing $AB = 8\text{ cm } (\pm 0.1)$ ft <i>their</i> measurements Allow W3 for 40 or W4 for 40 cm^2 www</p>
18	<p>(a) Eg, people outside cinema likely to be biased (in favour of cinema)</p>	<p>1</p>	
	<p>(b) Suitable question <u>and</u> at least 4 response boxes with non-overlapping categories covering all possibilities eg How many films do you watch in a year? 0-10, 11-20, 21-30, more than 30 with boxes</p>	<p>2</p>	<p>M1 for suitable question and 3 appropriate response boxes or question <u>and</u> 4 boxes with overlapping categories/not covering all possibilities</p>

19	(a) Manchester temperature changed to 26.6°F or NY temperature changed to 5°C NY colder Difference 2°C or 3.6°F	2 1ft 1ft	M1 for evidence of substitution in correct formula ft only ft only - must include C or F but condone missing °
	(b)* New York cheaper stated and supported by clear explanation and correct calculations. eg 1 US gallon costs \$3 which is £2 or 1 US gallon is nearly 4 litres so 1 litre in NY costs roughly 50p which is cheaper than £1.15 per litre in Manchester Or 1 US gallon would cost $£1.15 \times 3.8$ in Manchester which is about £4 1 US gallon costs \$3 in NY which is £2, so NY is cheaper 1 mark for attempting to find the cost of a US gallon in Manchester ($£1.15 \times 3.8$) or 1 litre in NY ($\$3 \div 3.8$ or $\$3 \times 0.26$)	3-2 1-0	2 marks for NY with a correct solution but an inadequate/incomplete explanation. eg NY is cheaper because a litre costs about 50p (or in Manchester a US gallon would cost about \$6) or NY with incomplete solution but clear calculation shown eg NY is cheaper because a litre costs $\$0.26 \times 3 = \0.78 in NY NY (or Manchester or no decision) with no relevant working

Paper Total: 100

Assessment Objectives and Functional Elements Grid

GCSE MATHEMATICS B

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	Topic	Context	Ref	AO1	AO2	AO3	Functional
1	Arithmetic		FIN2 FIN3 FBN8	5			
2	Coordinates; reflection		FIA4 FIG4 FIG8	4			
3	Pictogram	Music	FIS4 FIN5		6		6
4	Bearings	Towns	FBG6		4		
5	Negative numbers		FIN12	2			
6	Equivalent fractions; comparing FDPs		FBN4 FBN6	4			
7	Probability words; statistics; time	Swimming gala	FIG1 FIG2 FIS3 FBS2 FIN10	3	5	2	5
8	Fractions of quantities; converting FDPs		FIN5 FIN6 FIN8	5			
9	Listing and probabilities	Ice-cream	FBS1		6		
10	Solids; isometric drawing		FIG4; FBG3	4			
11	Scaling up a shape		FBG8	2			
12	Volume of a cuboid; percentages of a quantity	Storage containers	FBG4 FIN7			6	6
13	Classify quadrilaterals		FBG5	3			
14	Fraction arithmetic		FBN5 FGN2	5			
15	Equations; substitution; factorisation		FIA3 FBA4 FSA1 FSA3	10			
16	Draw and interpret graphs	Minicabs	FGA5		6		6
17	Construction; Parallel lines; Area of trapezium		FSG2 FSG1 FSG4	6		2	
18	Survey	Films	FSS5		3		3
19	Conversions	Manchester and New York	FSA1			7	7
TOTALS				53	30	17	33

Paper Total: 100 marks