



MATHEMATICS

0626/05

Paper 5

October/November 2019

MARK SCHEME

Maximum Mark: 96

Published

This mark scheme is published as an aid to teachers and candidates, to indicate the requirements of the examination. It shows the basis on which Examiners were instructed to award marks. It does not indicate the details of the discussions that took place at an Examiners' meeting before marking began, which would have considered the acceptability of alternative answers.

Mark schemes should be read in conjunction with the question paper and the Principal Examiner Report for Teachers.

Cambridge International will not enter into discussions about these mark schemes.

Cambridge International is publishing the mark schemes for the October/November 2019 series for most Cambridge IGCSE™, Cambridge International A and AS Level components and some Cambridge O Level components.

This syllabus is regulated for use in England as a Cambridge International Level 1/Level 2 (9–1) Certificate.

This document consists of **6** printed pages.

Generic Marking Principles

These general marking principles must be applied by all examiners when marking candidate answers. They should be applied alongside the specific content of the mark scheme or generic level descriptors for a question. Each question paper and mark scheme will also comply with these marking principles.

GENERIC MARKING PRINCIPLE 1:

Marks must be awarded in line with:

- the specific content of the mark scheme or the generic level descriptors for the question
- the specific skills defined in the mark scheme or in the generic level descriptors for the question
- the standard of response required by a candidate as exemplified by the standardisation scripts.

GENERIC MARKING PRINCIPLE 2:

Marks awarded are always **whole marks** (not half marks, or other fractions).

GENERIC MARKING PRINCIPLE 3:

Marks must be awarded **positively**:

- marks are awarded for correct/valid answers, as defined in the mark scheme. However, credit is given for valid answers which go beyond the scope of the syllabus and mark scheme, referring to your Team Leader as appropriate
- marks are awarded when candidates clearly demonstrate what they know and can do
- marks are not deducted for errors
- marks are not deducted for omissions
- answers should only be judged on the quality of spelling, punctuation and grammar when these features are specifically assessed by the question as indicated by the mark scheme. The meaning, however, should be unambiguous.

GENERIC MARKING PRINCIPLE 4:

Rules must be applied consistently e.g. in situations where candidates have not followed instructions or in the application of generic level descriptors.

GENERIC MARKING PRINCIPLE 5:

Marks should be awarded using the full range of marks defined in the mark scheme for the question (however; the use of the full mark range may be limited according to the quality of the candidate responses seen).

GENERIC MARKING PRINCIPLE 6:

Marks awarded are based solely on the requirements as defined in the mark scheme. Marks should not be awarded with grade thresholds or grade descriptors in mind.

MARK SCHEME NOTES

The following notes are intended to aid interpretation of mark schemes in general, but individual mark schemes may include marks awarded for specific reasons outside the scope of these notes.

Types of mark

- M Method marks, awarded for a valid method applied to the problem.
- A Accuracy mark, awarded for a correct answer or intermediate step correctly obtained. For accuracy marks to be given, the associated Method mark must be earned or implied.
- B Mark for a correct result or statement independent of Method marks.

When a part of a question has two or more ‘method’ steps, the M marks are in principle independent unless the scheme specifically says otherwise; and similarly where there are several B marks allocated. The notation ‘**dep**’ is used to indicate that a particular M or B mark is dependent on an earlier mark in the scheme.

Abbreviations

awrt	answers which round to
cao	correct answer only
dep	dependent
FT	follow through after error
isw	ignore subsequent working
nfww	not from wrong working
oe	or equivalent
rot	rounded or truncated
SC	Special Case
soi	seen or implied

Question	Answer	Marks	Partial Marks
1(a)(i)	Parallelogram	1	
1(a)(ii)	0 oe	1	
1(a)(iii)	2	1	
1(b)(i)	Rhombus	1	
1(b)(ii)	Kite	1	
1(c)	Equilateral	1	
2(a)	85	4	M1 for $132 + 93 \times 2$ oe, soi M1 for $743 - \textit{their}$ 318 oe, soi M1 for \textit{their} $425 \div 5$ soi

Question	Answer	Marks	Partial Marks
2(b)	772.2[0] or 772.22 nfw	4	B3 for figs 772[...] OR B1 for correct conversion to common units M1 for <i>their</i> $1 \text{ km} \div \text{their } 25.9 \text{ mm}$ soi M1 for $38\,610 \times 2$ or $38\,611 \times 2$ soi
3(a)	10 : 4 : 7	2	M1 for 250 : 100 : 175 or better
3(b)	160	2	M1 for $\frac{100}{25}$ or $\frac{100}{5}$ or $\frac{40}{25}$ oe soi or for $40 \times \text{their } 4$ from (a)
3(c)	Correct conversion to common units	B1	e.g. 0.5 kg = 500 g soi
	1500 \div 250 = 6, 500 \div 100 = 5, 1000 \div 175 = 5.7... soi	M2	M1 for two of these soi
	Correct conclusion	A1	
4(a)	115	1	
4(b)(i)	132 or correct amount from <i>their</i> measurement (within tolerance)	4	B1 for 5.5 soi (may be on the diagram) M1 for $20 \times \text{their } 5.5$ M1 for <i>their</i> 110×1.2
4(b)(ii)	Valid assumption	1	
4(c)	295	1	or FT from <i>their</i> (a) + 180, provided <i>their</i> (a) is an angle
5(a)	Valid explanation	1	
5(b)	5 269	2	B1 for each in either order
5(c)	2 41 43	3	M2 for 3 numbers that sum to 86 with 2 prime numbers or M1 for 3 numbers that sum to 86 with 1 prime number or 3 numbers with 2 consecutive odd numbers or 3 numbers with one 2
6(a)	$180 - (360 \div 5) = 108$ oe or $(5 - 2) \times 180 \div 5 = 108$ oe	2	M1 for $360 \div 5$ or for $(5 - 2) \times 180$ or B1 for 540 seen
6(b)(i)	54	2	M1 for 108 seen or used

Question	Answer	Marks	Partial Marks																																				
6(b)(ii)	126	2	FT <i>their</i> 54 M1 for $180 - \textit{their}54$ or for $(360 - 108) \div 2$																																				
7(a)(i)	<table border="1"> <tr> <td>–</td> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> </tr> <tr> <td>1</td> <td>0</td> <td>1</td> <td>2</td> <td>3</td> <td>4</td> </tr> <tr> <td>2</td> <td>1</td> <td>0</td> <td>1</td> <td>2</td> <td>3</td> </tr> <tr> <td>3</td> <td>2</td> <td>1</td> <td>0</td> <td>1</td> <td>2</td> </tr> <tr> <td>4</td> <td>3</td> <td>2</td> <td>1</td> <td>0</td> <td>1</td> </tr> <tr> <td>5</td> <td>4</td> <td>3</td> <td>2</td> <td>1</td> <td>0</td> </tr> </table>	–	1	2	3	4	5	1	0	1	2	3	4	2	1	0	1	2	3	3	2	1	0	1	2	4	3	2	1	0	1	5	4	3	2	1	0	1	
–	1	2	3	4	5																																		
1	0	1	2	3	4																																		
2	1	0	1	2	3																																		
3	2	1	0	1	2																																		
4	3	2	1	0	1																																		
5	4	3	2	1	0																																		
7(a)(ii)	$\frac{6}{25}$ isw or 0.24 or 24%	2	FT from <i>their</i> table M1 for numerator correct or denominator of 25																																				
7(a)(iii)	Valid explanation without contradictions	1																																					
7(b)(i)	0.2 oe	1																																					
7(b)(ii)	Tree diagram completed correctly	2	B1 for Waltzer No 0.1																																				
7(b)(iii)	0.18 oe	2	M1 for $0.9 \times \textit{their}$ 7(b)(i) or for $0.9 \times \textit{their}$ 0.2 from <i>their</i> tree																																				
8(a)	196.56 or 197	4	M1 for $2.5 \times 6 \times 4.2$ M1 for <i>their</i> 63×1.2 M1 for <i>their</i> $75.6 \times 260 \div 100$ oe																																				
8(b)	864	3	M2 for $\frac{1}{2} \times 9 \times 16 \times 12$ oe or M1 for $\frac{1}{2} \times 9 \times 16$ oe soi																																				
9(a)	1875	2	M1 for 125 seen or for $250 \div 2$ soi or for 3750 seen																																				
9(b)(i)	9.45	6	M1 for 5000×0.025 oe soi M2 for 5000×1.025^3 oe or M1 for 5000×1.025^2 A1 for 5384.45 M1 for <i>their</i> $5384.45 - (\textit{their}125 \times 3 + 5000)$ oe																																				
9(b)(ii)	Valid explanation	1																																					

Question	Answer	Marks	Partial Marks														
10(a)(i)	Valid explanation	1															
10(a)(ii)	50	3	M2 for $40 \div 360 \times 450$ oe or M1 for $40 \div 360$ oe or for $450 \div 360$ oe														
10(a)(iii)	630	3	M2 for $294 \div 168 \times 360$ oe or M1 for $294 \div 168$ soi or for $360 \div 168$ soi														
10(b)	16	3	B2 for 1.16 or 0.16 or 116 or M2 for $(493 - 425) \div 425 \times 100$ oe or M1 for $493 \div 425$ or for $493 - 425$														
11(a)	<table border="1" style="display: inline-table; vertical-align: middle;"> <tbody> <tr> <td>x</td> <td>-1</td> <td>0</td> <td>1</td> <td>2</td> <td>3</td> <td>4</td> </tr> <tr> <td>y</td> <td>8</td> <td>3</td> <td>0</td> <td>-1</td> <td>0</td> <td>3</td> </tr> </tbody> </table>	x	-1	0	1	2	3	4	y	8	3	0	-1	0	3	2	B1 for each
x	-1	0	1	2	3	4											
y	8	3	0	-1	0	3											
11(b)	Correct smooth curve drawn for $-1 \leq x \leq 4$	3	B2 FT for 5 or 6 points plotted correctly FT from <i>their</i> table or B1 FT for 3 or 4 points plotted FT from <i>their</i> table														
11(c)	0.5 to 0.7 3.3 to 3.5	2	FT <i>their</i> graph B1 for one correct value or for $y = 1$ drawn														
12(a)	$7(3x - 5)$	1															
12(b)	0, -5	2	B1 for each or M1 for $x(x + 5)$ seen														
12(c)	$4x^2 + 6xy - 6xy - 3x^2 - 9 = x^2 - 9$ (with no errors)	3	B1 for $4x^2 + 6xy$ B1 for $6xy + 3x^2 + 9$ soi														
13(a)	$2x + 2y$ or $x + y + x + y$ oe	1															
13(b)(i)	$2x + 6y$ or $2(x + 3y)$ final answer	2	B1 for answer $2x + ky$ or $kx + 6y$ ($k \neq 0$) or M1 for $2(x + 2y) + 2x + 2(y - x)$ oe or for $3 \times (2x + 2y) - 2 \times 2x$														
13(b)(ii)	$x = 4.5$ oe $y = 11$	4	M1 for <i>their</i> $(2x + 2y) = 31$ or <i>their</i> $(2x + 6y) = 75$ M1 for attempt to eliminate x or y A1 for $x = 4.5$ oe or $y = 11$														