Cambridge Assessment International Education
Cambridge International General Certificate of Secondary Education (9–1)

MATHEMATICS **0626/03**

Paper 3 **October/November 2017**

MARK SCHEME

Maximum Mark: 84

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 2017 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.

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)	322	**1**	
1(b)	63	**1**	
2(a)	7.1 to 7.5	**1**	
2(b)(i)	62 to 66	**1**	
2(b)(ii)	Acute indicated	**1**	
3(a)	Any one of 60, 120, 180 etc.	**1**	
3(b)	3 or 1	**1**	
4	$\frac{1}{2}$ 0.5 50% $\frac{1}{4}$ 0.25 25 $\frac{7}{10}$ 0.7 70 $\frac{3}{100}$ 0.03 3%	**3**	**B2** for 4 or 5 correct or **B1** for 2 or 3 correct
5(a)	kilogram	**1**	
5(b)	cm^2	**1**	
6	Correct ruled triangle with arcs	**3**	**B2** correct ruled triangle with no arcs or incorrect arcs OR **B1**for ruled side length 4 cm or 7 cm and **M1** for correct arcs
7(a)	$4p - 5r$ final answer	**2**	**B1** for $4p$ or $-5r$ seen
7(b)	Valid explanations	**2**	**B1** for each
8	64.6	**3**	**B2** for answer figs 646 or **M2** for 380 + 266 or 38 + 26.6 or 510 + 136 or 51 +13.6 or 76 – 11.4 soi or **M1** for one of these additions with one value correct <u>Alternative Method</u> **M2** for 300 + 80 + 210 + 56 or **M1** if at least two values correct and addition attempted

Question	Answer	Marks	Partial Marks
9(a)	68	**1**	
9(b)	Valid reason	**1**	e.g. More than one person in a car, absent teachers, students/visitors/support staff cars
9(c)(i)	$\frac{9}{68}$	**1**	**FT** *their* 68
9(c)(ii)	$\frac{21}{34}$ final answer	**2**	**B1** for $\frac{42}{\textit{their } 68}$ **B1** for *their* fraction correctly simplified
10	3	**2**	**M1** for $7 \times \frac{2}{3}$ soi by $\frac{14}{3}$ oe
11(a)	$\begin{pmatrix} 3 \\ -1 \end{pmatrix}$	**1**	
11(b)	$\begin{pmatrix} 12 \\ -4 \end{pmatrix}$	**2**	**B1** for $\begin{pmatrix} 3k \\ -1k \end{pmatrix}$, $k \neq 0$ or for any vector parallel to $\overrightarrow{AB}$ drawn on grid
12	9.60	**4**	**B2** for 48 OR **M1** for 80 ÷ 10 × 6 oe and **M1** for $\frac{\textit{their } 48}{10} \times 2$ oe
13	45	**2**	**M1** for 9 or **SC1** for –45
14(a)	27 000	**1**	
14(b)	0.060	**1**	
15(a)	Two different errors stated	**2**	**B1** for each e.g. He added first or he did multiplication/index after addition or $30^2 = 600$ is incorrect
15(b)	99	**2**	**M1** for 4 × 25 soi by 100 or **SC1** for answer 147
16	$\frac{1}{12}$ final answer	**2**	**M1** for $\frac{2 \times 1}{3 \times 8}$ soi If 0 scored, **SC1** for *their* fraction seen written in simplest form.

Question	Answer	Marks	Partial Marks
17(a)	5 points plotted correctly	**2**	**B1** for 3 or 4 correct
17(b)	Positive	**1**	
18(a)	$8a + 100 = 380$ isw oe	**2**	**B1** for $8a + 20 \times 5$
18(b)	35	**2**	**M1** for $8a = 380 - 100$ soi
19	48	**3**	**M2** for $\frac{288}{3+4+5} \times (5-3)$ oe or **M1** for $\frac{288}{3+4+5}$ soi OR **B2** for [24 × 5] =120 or [24 × 3] = 72 seen
20(a)	4	**2**	**M1** for $\frac{11-3}{2-0}$ oe soi
20(b)	[y =] 4x + 3 oe	**1**	**FT** from *their* gradient
21	35, 70, 75	**4**	**M1** for sum of angles in a triangle = 180 soi or for 3 angles that fit two of the conditions **M1** for 2x and x + 40 oe **M1** for $x + 2x + x + 40 = 180$ soi
22	Correct angle bisector with correct arcs shown	**2**	**B1** for angle bisector or correct arcs
23(a)	7	**1**	
23(b)	3, 7, 31 (with no extras)	**2**	**B1** for two correct (with no extras) or for answer [n =] 2, 3, 5 only or **M1** for 3, 7, 15, 31 seen
23(c)	Valid reason	**1**	e.g. Because 63 is divisible by 3 or 7 or 9 or 21 e.g. because 63 has more than 2 factors
24(a)	$\frac{2}{5}, \frac{4}{7}, \frac{3}{7}, \frac{4}{7}, \frac{3}{7}$ correctly placed	**2**	**B1** for $\frac{2}{5}$ or $\frac{3}{7}$ on a 'does not stop' branch
24(b)	$\frac{6}{35}$ oe	**2**	**M1** for *their* $\frac{2}{5} \times$ *their* $\frac{3}{7}$
25(a)	$(x+3)(x-6)$	**2**	**M1** for $x(x-6) + 3(x-6)$ or $x(x+3) - 6(x+3)$ or for $(x+a)(x+b)$ where $a + b = -3$ or $ab = -18$
25(b)	$x = -3,\ x = 6$	**1**	**FT** *their* factors

Question	Answer	Marks	Partial Marks
26	60	**4**	**M1** for time for A to B = 125 ÷ 50 soi **M1** for time for B to C = 4 – *their* 2.5 **M1** for 90 ÷ *their* 1.5
27	$x^2 + 7x – 4x – 28$	**M1**	Must have at least 3 terms correct or $x^2 + 3x – 28$, must have at least 2 terms correct
	$3x^2 – 3x$	**B1**	
	$x^2 + 7x – 4x – 28 + 3x^2 – 3x$ $= 4x^2 – 28 = 4(x^2 – 7)$	**A1**	
28	$3k^7$	**1**	