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

MATHEMATICS **0626/05**

Paper 5 (Core) **May/June 2017**

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 will not enter into discussions about these mark schemes.

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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	Part Marks
1(a)	8.26	**2**	**M1** for 2.36 × (350 ÷ 100) oe or [350 ÷ 100] = 3.5 soi
1(b)(i)	3.91	**2**	**M1** for 6.8[0] × 0.575 or answer figs 391
1(b)(ii)	16.09	**1**	**FT** 20 – *their* 3.91
1(c)	Pack of 10 with 0.289 and 0.295 oe seen	**2**	**M1** for 1 egg costs 0.289 or 0.295 oe or 3.46 eggs / £ and 3.39 eggs / £
1(d)	2.85	**2**	**B1** for 0.95 or 95p seen or **M1** for 3.8[0] × 0.75 oe
2(a)(i)	10 15	**1**	
2(a)(ii)	47	**1**	**FT** from (a)(i)
2(b)	12 05 or 12 05 pm	**1**	
2(c)	52	**3**	**M1** for 1 hour 15 min or 75 mins oe **M1** for 65 ÷ *their* journey time
2(d)	48 ÷ 3 [× 2]	**M1**	
	0.35 × 48 oe	**M1**	
	16.8[0] or 32 or 7.2[0] or 14.4[0]	**A1**	Following a correct method
	Correct working to show saving e.g. 48 + 2 × 24 – (32 + 2 × 16.8) = 30.40	**A1**	or 16 + 2 × 7.2 = 30.40
3	Plan B with £109.23 and £122.88 or 10 923p and 12 288p	**4**	**M1** for 2400 × 5.12 soi **M2** for 2400 × 3.67 + 90 × 23.5 soi or **M1** for 90 × 23.5 soi
4(a)(i)	5.2 oe	**1**	
4(a)(ii)	7	**2**	**M1** for + 4.8 and ÷ 2.5 soi or **SC1** for answer of 14.6[2] or $14\frac{31}{50}$
4(b)	[p =] 3.5 [q =] 5	**3**	**B1** for $q = 5$ **M1** for $8p$ + *their* $q = 33$ soi
5(a)(i)	Frequency graph completed correctly with 3 correct heights and widths of missing bars	**2**	**M1** for 2 correct heights of missing bars

Question	Answer	Marks	Part Marks
5(a)(ii)	$\frac{13}{67}$	**2**	**M1** for total frequency is 67 or for $\frac{13}{n}$ (n an integer > 13)
5(b)(i)	25	**4**	**B1** for [car sector angle =] 200 soi **M1** for 32 ÷ 4 **M1** for *their* 200 ÷ *their* (32÷ 4) or bus = 11 **and** walk = 5 soi
5b(ii)	One correct reason	**1**	
5(c)(i)	58	**1**	
5(c)(ii)	27	**1**	
5(c)(iii)	32.5	**2**	**M1** for 32 and / or 33 as answer or identified in table or working or for figs 325 as answer
6(a)	cement 3 sand 13.5	**2**	**B1** for one correct answer or answers reversed or **M1** for 16.5 ÷ (9 + 2)
6(b)	Correct reason	**1**	
6(c)	79.1	**3**	**M1** for [1 part =] 11.3 soi **M1** for *their* 11.3 × (1 + 2 + 4) or aggregate 42.5 soi
7(a)(i)	Correct statement	**1**	
7(a)(ii)	2.2 oe	**1**	
7(b)(i)	$8x - 36 - 3x + 21$ [$= 5x - 15$]	**2**	**B1** for $8x - 36$ or $-3x + 21$ seen
7(b)(ii)	3	**1**	
8(a)	$D = V + \frac{V^2}{20}$	**1**	or $D = \frac{V^2}{20} + V$
8(b)	146.25	**2**	**M1** for $45^2 \div 20 + 45$ oe or $45 \times (1 + 45 \div 20)$ oe
8(c)	275 or 274.[8…]	**4**	**M1** for $\frac{V^2}{20} = 210$ **M1** for $V = \sqrt{210 \times 20}$ soi **M1** for 210 + *their* 64.8 oe
9(a)	rotation centre (2, 5) 90° clockwise oe	**3**	**B1** for each

Question	Answer	Marks	Part Marks
9(b)	correct reflection	**2**	**B1** for a refection in any other vertical line or for reflection in $y = 4$ or for two correct vertices
9(c)	correct enlargement	**2**	**B1** for shape enlarged SF $\frac{1}{2}$
10(a)	75400	**2**	**M1** for 72500 × 1.04 oe or 72500 × 0.04 oe
10(b)	13.7 or 13.68 to 13.69	**3**	**M2** for (305700 – 268900) ÷ 268900 oe or for 305700 ÷ 268900 × 100 oe or **M1** for 305700 – 268900 or for 305700 ÷ 268900
10(c)	1.073×10^{6}	**1**	
10(d)	1.22×10^{9}	**3**	**B2** for 1.2189×10^{9} seen or for 1220000000 oe seen or **M1** for 11100000 or 1230000000 seen or figs 12189 seen
11(a)	63.6 or 63.61 to 63.63	**3**	**M1** for $\sqrt{81}$ soi **M1** for $\pi\times\left(\textit{their}\ \frac{\sqrt{81}}{2}\right)^2$
11(b)(i)	$(2x)^2$ or $4x^2$ **and** πx^2 seen	**M1**	
	$4x^2 : \pi x^2 = 4 : \pi$	**A1**	
11(b)(ii)	25.5 or 25.46[…]	**2**	**M1** for $\frac{20}{\pi}=\frac{A}{4}$ oe
12(a)	7.5	**2**	**M1** for $\frac{5}{4}=\frac{x}{6}$ oe or $\frac{3}{2.4}=\frac{x}{6}$ oe or SF 1.25 soi

Question	Answer	Marks	Part Marks
12(b)	31.25	**4**	**M1** for $\frac{18.75}{7.5}$ **M1** $[AB] = \textit{their}\frac{18.75}{7.5}\times 10$ **M1** for $(\textit{their}\ 25)^2 + 18.75^2$ Alternative method **M1** for $\frac{18.75}{7.5}$ **M1** for $7.5^2 + 10^2$ **M1** for $[AC] =$ $\textit{their}\frac{18.75}{7.5}\times \textit{their}\sqrt{7.5^2+10^2}$ Alternative method **M1** for $\tan = \frac{7.5}{10}$ **M1** for $\tan^{-1}\left(\frac{7.5}{10}\right)$ **M1** for $[AC =]\ \frac{18.75}{\sin(\textit{their}\,36.9)}$
13(a)(i)	31	**1**	
13(a)(ii)	$6n$ + 1 oe final answer	**2**	**B1** for answer $6n + k$ oe, k an integer
13(b)	149	**4**	**M1** for $3n^2 + 2 = 110$ **M1** for $n = 6$ **M1** for $3(\textit{their}\ 6 + 1)^2 + 2$