Cambridge International Examinations
Cambridge International General Certificate of Secondary Education

MATHEMATICS **0580/12**

Paper 1 Core **May/June 2016**

MARK SCHEME

Maximum Mark: 56

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.

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This syllabus is approved for use in England, Wales and Northern Ireland as a Cambridge International Level 1/Level 2 Certificate.

Abbreviations

cao correct answer only
dep dependent
FT follow through after error
isw ignore subsequent working
oe or equivalent
SC Special Case
nfww not from wrong working
soi seen or implied

Question	Answer	Mark	Part marks
1	$0.008 < 0.2 < 0.304 < 0.57$	**1**	
2	5.89 or 5.885 to 5.886	**1**	
3	3.590 cao	**1**	
4	Parallelogram	**1**	
5	284.2[0] cao	**1**	
6	36	**1**	
7 (a)	$5f$ final answer	**1**	
(b)	g^8 final answer	**1**	
8	24	**2**	**M1** for $6 \div 45$ or $180 \div 45$
9	$7n - 3$ oe	**2**	**M1** for $7n + a$ or $bn - 3$ ($b \neq 0$)
10	15	**2**	**M1** for $20 \div 12$ or $12 \div 9$ or $9 \div 12$ or $12 \div 20$
11 (a)	2.6×10^6	**1**	
(b)	[0].0058	**1**	
12	$\frac{1}{4}$	**1**	
	[0].3	**1**	
	0.08	**1**	
13 (a)	Arrow 2 cm from 0	**1**	
(b) (i)	$\frac{8}{20}$ oe	**1**	
(ii)	$\frac{12}{20}$ oe	**1FT**	**FT** 1 – *their* (b)(i) provided *their* (b)(i) < 1

Question	Answer	Mark	Part marks
14 (a)	44	**1**	
(b)	180 to 184	**2**	**M1** for £50 = $90 to $92 oe soi
15 (a) (i)	$\begin{pmatrix}12\\-6\end{pmatrix}$	**1**	
(ii)	$\begin{pmatrix}7\\-2\end{pmatrix}$	**1**	
(b)	*A* in correct position	**1**	
16 (a)	(0, –3)	**1**	
(b)	4	**1**	
(c)	$y = 4x$ [+0]	**1FT**	**FT** $y = $ *their* (b)x for numerical gradient only
17	45	**3**	**M2** for 360 ÷ (180 – 172) or **M1** for 180 – 172 or $\frac{180(n-2)}{n} = 172$ oe
18	$\frac{21}{8} \times \frac{3}{7}$ oe $1\frac{1}{8}$ cao final answer	**M1** **A2**	Must be shown **A1** for $\frac{9}{8}$ oe e.g. $\frac{63}{56}$
19	Correctly eliminating one variable $x = 4$ $y = 0.5$ oe	**M1** **A1** **A1**	If zero scored **SC1** for 2 values satisfying one of the original equations or if no working shown, but 2 correct answers given
20 (a)	Bisector of angle *B* accurate with two pairs of correct arcs	**2**	**B1** for accurate line with no/wrong arcs or for correct arcs with no/wrong line
(b)	Ruled line parallel to *AC* at a distance of 3 cm to *AC* only inside the triangle	**1**	
21 (a)	Wed[nesday]	**1**	
(b)	4	**1**	
(c)	9	**1**	
(d)	–1 nfww	**1**	

22	**(a)**	51	**2**	**M1** for $\frac{1}{2}\times(10+7)\times 6$ oe
	(b)	612	**1FT**	**FT** 12 × *their* (a)
		cm^3	**1**	
23	**(a)**	16 10 or 4 10 pm	**1**	
	(b)	12	**2**	**M1** for 8 ÷ 40 or better
	(c)	Line from (16 10, 8) to (16 55, 8)	**1**	
		Line from (16 55, 8) to (17 25, 0)	**1FT**	**FT** line from *their* (16 55, 8) to ((*their* 16 55 + 30 mins), 0)