Cambridge International Examinations
Cambridge International General Certificate of Secondary Education

MATHEMATICS **0580/12**

Paper 12 (Core) **March 2017**

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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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	Marks	Part Marks
1	5	**1**	
2	2 squares added correctly	**1**	
3 (a)	14	**1**	
(b)	3000	**1**	
4	3600	**2**	**M1** for 12 × 15 × 20
5	35.5	**2**	**M1** for (34 + 38 + 10 + 87 + 45 + 28 + 19 + 23) ÷ 8
6 (a)	6.29×10^5	**1**	
(b)	[0].00821	**1**	
7	84.8 or 84.82 to 84.83[…]	**2**	**M1** for 27 × π
8	$\frac{10\times20}{90-40}$	**M1**	
	4 nfww	**A1**	
9	$5c(3c-1)$ final answer	**2**	**B1** for $5(3c^2-c)$ or $c(15c-5)$
10	9	**2**	**M1** for 2 × 2 × 3 × 3 and 7 × 3 × 3 seen or final answer 3
11 (a)	8	**1**	
(b)	2	**1**	
12	27032 cao	**2**	**M1** for 400 × 1.09 [× 62] or 62 × 1.09[× 400]
13	24.2 or 24.19…..	**2**	**M1** for tan [=] $\frac{6.2}{13.8}$
14 (a)	9	**1**	
(b)	Bar height 23 drawn	**2**	**M1** for [117 –] 22 + 15 + 19 + 24 + 14 or **B1** for 94 or 23 seen

Question	Answer	Marks	Part Marks
15 (a)	–1	**1**	
(b)	25	**1**	
(c)	65	**1**	
16 (a)	Angle in semi-circle drawn with diameter through centre	**1**	
(b)	Equilateral triangle with correct arcs.	**2**	**M1** for clear evidence of constructed 60° angles or arcs crossing equal in length to AB or an accurate diagram with no/incorrect arcs
17	$\frac{10}{3}$ or $\frac{5}{2}$	**B1**	oe improper fraction
	$their\frac{10}{3}\times their\frac{2}{5}$	**M1**	accept $\frac{20}{6}\div\frac{15}{6}$
	$1\frac{1}{3}$ cao	**A1**	
18 (a)	$18w + 14$ final answer	**2**	**M1** for $20w+12$ or $-2w+2$ or answer $18w+k$ or $kw+14$
(b)	w^{10}	**1**	
19	2981.51	**3**	**M2** for 2400×1.075^3 oe or **M1** for 2400×1.075^2 oe If zero scored **SC2** for 581.51 or **SC1** for 581.512[5] or 581.513
20	9	**3**	**B1** for 135°. **M1** for $\frac{their\,135}{360}\times 24$ oe
21 (a)	$\begin{pmatrix}4\\-3\end{pmatrix}$	**1**	
(b) (i)	Point at (3, 5)	**1**	
(ii)	$\begin{pmatrix}1\\-3\end{pmatrix}$	**1FT**	**FT** their $\overrightarrow{AC}$
22 (a)	2.5 or $2\frac{1}{2}$	**1**	
(b)	7	**2**	**M1** for $5x+40=[75]$ or $x+8=75\div 5$ or better
(c)	5	**1**	

Question	Answer	Marks	Part Marks
23 (a)	$[y =] -2x + 3$	**3**	**B2** for $[y =] -2x + c$ or **M1** for rise/run and **B1** for $[y =] kx + 3,\ k \neq 0$ or $c = 3$
(b)	Ruled line $y = -2x - 1$ drawn	**1**	