



Cambridge International Examinations
Cambridge International General Certificate of Secondary Education

MATHEMATICS

0580/13

Paper 1 (Core)

May/June 2016

MARK SCHEME

Maximum Mark: 56

Published

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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
nfw	not from wrong working
soi	seen or implied

Question	Answer	Mark	Part marks
1	9 082 507	1	
2	71 000 cao	1	
3	17	1	
4	Negative	1	
5	1.72	1	
6 (a)	2 -6 -8	1	
(b)	3 -8	1	
7	0.5 or $\frac{1}{2}$	2	M1 for correct first step e.g. $6y + 6 = 9$ or $y + 1 = \frac{9}{6}$
8 (a)	$\begin{pmatrix} -6 \\ 3 \end{pmatrix}$	1	
(b)	Point B at (-3, 2)	1	
9	10.3 oe	2	M1 for $5x = 51.5$ oe
10	4.95 5.05	1, 1	SC1 for both correct but reversed
11	$\frac{1}{12} \times \frac{6}{5}$ oe $\frac{1}{10}$ final answer cao	M1 A1	Must be shown
12	22.1	2	M1 for $\cos 16 = \frac{AC}{23}$ soi
13	128	3	M1 for $800 \div 6.24$ A1 for 128.2

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Question	Answer	Mark	Part marks
14	4 990 or 4 989 or 4 989.2 or 4 989.23	3	M2 for $4\,500\left(1 + \frac{3.5}{100}\right)^3$ oe or M1 for $4\,500\left(1 + \frac{3.5}{100}\right)^2$ oe
15 (a)	72	1	
(b)	123	2FT	FT dep. on answer being obtuse M1 for $(360 - \text{their}(a) - 42) [\div 2]$
16	For correctly eliminating one variable [x =] 3.5 [y =] -4.5	M1 A1 A1	Or correctly rearranging one equation and substituting into the other If zero scored SC1 for 2 values satisfying one of the original equations or if no working shown but 2 correct answers given
17 (a)	$\frac{24}{100}$ oe	1	
(b)	$\frac{78}{100}$ oe	2	M1 for $\frac{18 + 36 + 24}{100}$ or $1 - \frac{22}{100}$
(c)	0	1	
18 (a)	2 cao	2	M1 for rise/run attempted e.g. 4/2 or other correct method for finding gradient or SC1 for $y = 2x - 1$ as answer
(b)	$y = 2x + 6$ oe	2FT	FT for $y = \text{their}(a)x + 6$ B1 for $y = mx + 6$ ($m \neq 0$ or 2) or $y = 2x [+k]$ or $y = \text{their}(a)x [+k]$ ($k \neq 6$) or for answer $2x + 6$ or answer $\text{their}(a)x + 6$
19 (a)	44	3	M2 for $\sqrt{93.5^2 - 82.5^2}$ or M1 for $CD^2 + 82.5^2 = 93.5^2$
(b)	33	1FT	FT $93.5 - (82.5 + \text{their}(a))$
20 (a) (i)	2400	1	
(ii)	Ruled line (08 15, 0) to (08 45, <i>their</i> 2400)	1FT	Follow through <i>their</i> 2400 and 30 minute time period

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Question	Answer	Mark	Part marks
(b) (i)	Horizontal line 1.5 hours from (<i>their</i> 08 45, <i>their</i> 2400)	1FT	FT (<i>their</i> 08 45 + 90 min, <i>their</i> 2400)
	Line from <i>their</i> (10 15, 2400) to Home axis 15 min later	1FT	FT (<i>their</i> 10 15, <i>their</i> 2400) to (<i>their</i> 10 15 + 15 min, 0)
(ii)	160	2FT	M1FT for <i>their</i> 2400 ÷ 15
21 (a) (i)	120	1	
(ii)	15	2	M1 for <i>their</i> 120 ÷ 360 [× 45] or 45 ÷ 360 [× <i>their</i> 120]
(b)	192	2	M1 for 24 ÷ 45 [× 360]
(c)	Line giving angles of 192° and 48° from given lines	1FT	FT <i>their</i> 192
(d)	Blue and an acceptable reason	1	