



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
- nfww 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	4990 or 4989 or 4989.2 or 4989.23	3	M2 for $4500\left(1 + \frac{3.5}{100}\right)^3$ oe or M1 for $4500\left(1 + \frac{3.5}{100}\right)^2$ 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, their 2400)	1FT	Follow through their 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	