

MARK SCHEME for the May/June 2014 series

0580 MATHEMATICS

0580/12

Paper 1 (Core), maximum raw mark 56

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

Qu.	Part	Answers	Mark	Part Marks
1		$4p$	1	
2		1.49 or 1.491...	1	
3	(a)	340 000	1	
	(b)	999 999	1	
4		$\sqrt{0.2}$ $\frac{9}{20}$ 45.4% $\frac{5}{11}$	2	B1 for 3 from 0.4545[...], 0.447[2....], 0.454, 0.45 or equivalent percentages seen or three in the correct order. If zero SC1 for correct but in reverse order.
5	(a)	-9	1	
	(b)	10 or -10	1	
6	(a)	570 000	1	
	(b)	5.69×10^5	1	
7		$4 \quad 4 \quad 10$	2	B1 for answer of $4 \quad 4 \quad k$ or $4 \quad p \quad q$ where $p + q = 14$
8	(a)	(0, 5)	1	
	(b)	-1	1	
9		$[x =] 2, [y =] - 3$	2	B1 B1 or SC1 for reversed answers
10		7.06 or 7.063 to 7.064	2	M1 for $\frac{[]}{8} = \cos 28$ or better
11		8750 8850	1, 1	If zero, SC1 for both correct but reversed
12	(a)	46	1	M1 for adding 3 h 20 min and 2 hours to 14 45 or B1 for 18 05 or 6 05 pm or 16 45 or 4 45 pm or 20 h [0]5 or 20 05 pm or 20 05 am
	(b)	20 05 or 8 05 pm	2	

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13	(a) (i)	326 – 330	1	dep on 100 000 or [0].084 seen www scores 0
	(a) (ii)	1100 – 1140	1	
	(b)	B	1	
14	(a)	35	1	M1 for multiplying by 3 or for dividing by $\frac{1}{3}$ or M1 for dividing by A
	(b)	$\frac{3V}{A}$ or $3VA^{-1}$	2	
15		3.17 or 3.174 to 3.175	3	M2 for $\frac{63-61}{63} \times 100$ oe or $100 - \frac{61}{63} \times 100$ oe or M1 for $\frac{63-61}{63}$ oe or $\frac{61}{63} \times 100$
16		$\left[\frac{1}{2} \times 1\frac{1}{2} = \right] \frac{3}{4}$ oe	B1	
		$\frac{5 \times 2}{6 \times 2}$ and $\frac{3 \times 3}{4 \times 3}$ oe or better	M1FT	
		$\frac{1}{12}$ oe	A1	
		working must be shown		
17		74	4	M1 for 800×1000 or $180 \div 1000$ soi and M1 for figs 8 \div figs 18 and M1 for converting (secs) to mins 74.1 or 74.07... implies M3
18	(a)	(0).82 oe	1	in (b) penalise consistent incorrect denominator once
	(b) (i)	$\frac{5}{14}$ oe	1	
	(ii)	$\frac{9}{14}$ oe	1	
	(iii)	0	1	

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19	(a)	acute	1	
	(b)	reflex	1	
	(c)	parallel	1	
	(d)	perpendicular	1	
20	(a)	300.763 cao	2	M1 for 6.7^3 oe
	(b)	269.34 cao	2	M1 for $6.7^2 \times 6$ oe
21	(a)	177 or 176.7 to 176.74	2	M1 for $\pi \times 7.5^2$ oe
	(b) (i)	27	2	B1 for angle <i>CAO</i> marked, or clearly used, as a right-angle (or 90°) or M1 for $180 - 90 - 63$ oe
	(ii)	one correct geometrical reason	1	[angle between a] radius [and a] tangent [is a] right-angle or [angles in a] triangle [add up to] 180° or [the] angles [have to] add to 180°