CAMBRIDGE INTERNATIONAL EXAMINATIONS

International General Certificate of Secondary Education

MARK SCHEME for the May/June 2014 series

0580 MATHEMATICS

0580/13 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.

Cambridge will not enter into discussions about these mark schemes.

Cambridge is publishing the mark schemes for the May/June 2014 series for most IGCSE, GCE Advanced Level and Advanced Subsidiary Level components and some Ordinary Level components.

CAMBRIDGE
International Examinations

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		Answers	Mark	Part Marks
1		–19	**1**	
2		64.5[0]	**1**	
3		128	**1**	
4		−107	**1**	
5		1	**1**	
6		4.5×10^4	**1**	
7		Cube net drawn correctly	**1**	
8		31, 37	**1**	
9	**(a)**	$\begin{pmatrix} -6 \\ 8 \end{pmatrix}$	**1**	
	(b)	$\begin{pmatrix} -5 \\ -2 \end{pmatrix}$	**1**	
10	**(a)**	8	**1**	
	(b)	1224 or 1292	**1**	
11		–3, –5, 0 [=] –8	**2**	**B1** for –3, –5 and 0 in any order seen on left hand side. or **B1** for –8 seen on answer line in correct position
12		24	**2**	**M1** for $\sqrt{36} \times 4$ oe or **B1** for 6 seen
13		8	**2**	**B1** for 6×5 or better
14		–22	**2**	**M1** for $3\times(-4) - 5\times2$ or **B1** for −12 or −10 seen in the working.

15	**(a)**	$\frac{13}{24}$ oe	**1**	
	(b)	$\frac{11}{24}$ oe	**1**	
16		$\frac{7}{12}$ oe	**2**	**B1** for $\frac{7}{6}$ or ($\frac{3}{6}$ and $\frac{4}{6}$) or $\frac{6}{12}$ and $\frac{8}{12}$ etc., or $\frac{3.5}{6}$
17		Perpendicular bisector with 2 pairs of correct arcs.	**2**	**B1** for correct line or **B1** for 2 pairs of correct arcs
18		84	**2**	**M1** for $\frac{7}{6+8+9+7}$ or $\frac{360}{6+8+9+7}$
19		1030	**2**	**M1** for $1350 \div 1.313$
20		Triangle at (2, –1) (2, 1) (1, –2)	**2**	**B1** for translation by $\begin{pmatrix} k \\ -4 \end{pmatrix}$ or $\begin{pmatrix} 3 \\ k \end{pmatrix}$
21		12	**2**	**M1** for $360 \div 30$
22	**(a)**	74	**1**	
	(b)	8.69	**1**	

23		$\frac{5}{4}$ oe $\frac{5\times9}{4\times9}$ and $\frac{7\times4}{9\times4}$ oe or better $\frac{17}{36}$ **oe** working must be shown	**B1** **M1** **A1**	Do not allow decimals for the **B1**, **M1** or **A1** e.g. $\frac{45}{36}$ and $\frac{28}{36}$ Follow through *their* $\frac{5}{4}$ for the **M1** mark. Alt method 1: **B1** for $\frac{1}{4}+\frac{2}{9}$ **M1** for $\frac{1\times9}{4\times9}$ and $\frac{2\times4}{4\times9}$ oe e.g. $\frac{9}{36}$ and $\frac{8}{36}$ Alt method 2: **B1** for $\frac{1}{4}--\frac{7}{9}+1$ **M1** for oe e.g. $\frac{9}{36}$ and $\frac{8}{36}$ ISW converting fraction answer to decimal.
24		$x = 4$ $y = 7$	**3**	**M1** for correct method to eliminate one variable or (substitution) correct rearrangement of one equation seen substituted into the second equation. **A1** for one correct answer. If **M0 SC1** for both answers satisfying one of the original equations
25	**(a)**	6	**1**	
	(b)	They are at the same place at the same time	**1**	
	(c)	16	**1**	
	(d)	15 cao	**2**	**M1 FT** for $\frac{4}{their(c)}\times60$ oe

26	**(a)**	$5a(3a^2 - b)$	**2**	**B1** for $a(15a^2 - 5b)$ or $5(3a^3 - ab)$
	(b)	$3x^6y^4$	**2**	**B1** for x^6 or y^4 in a product on answer line
	(c)	$6 - 5x$ as final answer nfww	**2**	**B1** for $3x - 6$ or $-8x + 12$ seen or **SC1** for 6 or $-5x$ seen in final answer nfww
	(d)	3 nfww	**3**	**M2** for $5x = 15$ or **B1** for $3x + 24$ seen or **M1** for $8x - 3x = 3 \times 8 - 9$ or better. If zero, **SC1** for answer $[x =] -\frac{1}{5}$