UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS

International General Certificate of Secondary Education

MARK SCHEME for the October/November 2010 question paper

for the guidance of teachers

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 must be read in conjunction with the question papers and the report on the examination.

- CIE will not enter into discussions or correspondence in connection with these mark schemes.

Abbreviations

cao	correct answer only
cso	correct solution only
dep	dependent
ft	follow through after error
isw	ignore subsequent working
oe	or equivalent
SC	Special Case
www	without wrong working

Qu.	Answers	Mark	Part Marks
1	Pyramid	1	
2	1, 4, 25, 100	2	**B1** for any two and none incorrect. −1 each incorrect
3	**(a)** 2 **(b)** 2	1 1	
4	**(a)** 41 or −41 **(b)** −7	1 1	
5	$2x^2 + xy$ final answer	2	**B1** for $2x^2$ or xy seen in working
6	5.5	2	**M1** for $2x + 1 = 3 \times 4$ or better or $\frac{2x}{3} = 4 - \frac{1}{3}$
7	6.489	2	**B1** for 6.5 or 6.49 or 6.4891….
8	35	2	**M1** for $45 \div (7 + 2)$ **SC1** for answer = 10
9	46.4	2	**M1** for 32×1.45 oe or **B1** for answer of 14.4
10	$\frac{3}{16}$	2	**B1** for $\frac{1875}{10000}$ or any equivalent fraction.
11	$3a(c - 2d)$	2	**B1** for $a(3c - 6d)$ or $3(ac - 2ad)$ or $3a(jc - kd)$ where j and k are non-zero.
12	$\frac{8}{27}$	2	**M1** for $1 \div (1\frac{1}{2})^3$ oe or **SC1** for $\frac{27}{8}$
13	$(x =)\, 2,\ (y =)\, -1$	2	**M1** for correct method for eliminating one variable. Subtract or multiply by 3 and 5, then subtract

14	**(a)** 17	1	
	(b) √17 or 4.12(….)	1	
	(c) 0.294	1	
15	212.18 final answer cao	3	**M2** for 200×1.03^2 oe or **M1** for $(200 \times 1.03) \times 0.03$ oe
16	**(a)** 90	1	
	(b) 45	1ft	ft $\frac{1}{2}$ (180 – their **(a)**)
	(c) 45	1ft	ft 90 – their **(b)**
17	**(a)** $(7 + 2) \times 9$	1	
	(b) $36 \div (6 \div 2) = 12$	1	
	(c) $5 \times (3 + 6) \times 2 = 90$	1	
18	**(a) (i)** $\begin{pmatrix} 4 \\ 5 \end{pmatrix}$	1	
	(ii) $\begin{pmatrix} 2 \\ -2 \end{pmatrix}$	1	
	(b) (AC) + **(CB)** = **(AB)**	1	
19	$(y =) -\frac{1}{3} x + 2$ cao	3	**B1** for gradient of $\pm\frac{1}{3}$ oe (Allow ±0.33 or better) **B1** ind for $mx + 2$ where $m \neq 0$.
20	**(a) (i)** 4	1	
	(ii) $\frac{4}{5}$ oe	1	
	(iii) $\frac{2}{5}$ oe	1	
	(b) $\frac{2}{4}$ oe	1	
21	(Mode =) 0 (Median =) 2 (Mean =) 2.7	1 1 2	**M1** $(0 + 0 + 0) + 1 + 2 + 2 + 4 + 4 + 5 + 9$

22	(a)	Lines connecting (08 00, home) to (08 10, shop)	3		**B1** home to shop
		(their 08 10, shop) to (their 08 15, shop)			**B1**ft horizontal and 5 minute period
		(their 08 15, shop) to (08 30, school)			**B1**ft for line to 08 30 and school
	(b)	1.65	2		**M1** for use of speed × time **SC1** for 1.375 or 1.376 to 1.38