UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS

International General Certificate of Secondary Education

MARK SCHEME for the October/November 2011 question paper for the guidance of teachers

0581 MATHEMATICS

0581/11 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.

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

Cambridge is publishing the mark schemes for the October/November 2011 question papers for most IGCSE, GCE Advanced Level and Advanced Subsidiary Level syllabuses and some Ordinary Level syllabuses.

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	$\begin{pmatrix} -3 \\ 4 \end{pmatrix}$	**1**	
2	24 or 24 out of 30	**2**	**M1** for $\frac{4}{5} \times 30$
3	1.8	**2**	**M1** for $1.4 \div 7$ or **SC1** for **answer** 180
4	16	**2**	**B1** for 1cm to 0.5km oe or 800 000 (cm) or figs 16
5	**(a)** 25 **(b)** Green cao	**1** **1**	
6	7.5(0) cao	**2**	**M1** for $\frac{258.75}{4.6}$
7	**(a)** 120 **(b)** $\frac{9}{25}$ cao	**1** **2**	 **B1** for $\frac{36}{100}$ or $\frac{18}{50}$
8	**(a)** 7853 to 7855 or 7850 or 7860 www **(b)** 0.7853 to 0.7855 or 0.785 or 0.786	**2** **1ft**	**M1** for $\pi \times 50^2$ Their **(a)** $\div$ 10 000 evaluated
9	**(a)** 15 **(b)** 2 (pm), 6 (pm) **(c)** 15	**1** **1** **1**	 Allow –15
10	**(a)** Rectangle or rhombus **(b)** Isosceles (triangle) **(c)** 5 cao	**1** **1** **1**	Either one or both given

11	$\frac{11k}{24k}$ final answer www		Method 1 (Addition first)
		B1	$\frac{8}{12}+\frac{3}{12}$ or $\frac{8+3}{12}$ oe
		M1	$\frac{1\times \text{their } 11}{2\times \text{their } 12}$
		A1	
			Method 2 (Multiplication first)
		B1	$\frac{2}{6}+\frac{1}{8}$ or $\frac{1}{3}+\frac{1}{8}$ oe
		M1	$\frac{ad+bc}{bd}$ for their $\frac{a}{b}+\frac{c}{d}$
		A1	
			If **M0**, **SC1** if $\frac{11}{12}$ is only followed by $\frac{11}{24}$ or if zero, **SC1** if work is entirely in decimals with answer of $0.458\dot{3}$ to 0.45835
12	**(a)** Correct ruled line	**1**	
	(b) –2.7, 0.7	**1, 1ft**	**B2ft** their ruled line through (0, 3) for two intersections given to 1 decimal place or **B1** for –2.70 to –2.75 and 0.70 to 0.75 or **B1ft** their ruled line through (0, 3) for two intersections not given to 1 decimal place
13	135 cao	**3**	**M1** for 720 or (6 – 2) × 180 oe seen in working and **M1** for equation $180 + 4x =$ their 720 or **M1** for (360 – 180) ÷ 4 (= 45) oe seen in working and **M1** dep for 180 – their 45
14	**(a)** $9x – 10$ final answer	**2**	**B1** for $6x – 4$ or $3x – 6$ or for answer of $9x + j$, or $kx – 10$
	(b) $2x^3 – 3x$ final answer	**2**	**B1** for answer in form $2x^3 + m$ or $n – 3x$
15	**(a)** Negative	**1**	Ignore embellishments
	(b) Correct point	**1**	
	(c) **(i)** Accurate ruled line	**1**	
	(ii) English mark	**1ft**	Follow through their **(c)(i)**
16	**(a)** 70	**2**	**B1** for angle $ABD = 70°$ stated or seen on the diagram
	(b) **(i)** ($y =$) 80	**1**	
	(ii) ($z =$) 40	**1**	
	(iii) ($t =$) 10	**1ft**	Follow through 90 – their y or 50 – their z

17	**(a)** 7.42 or 7.416... cao	**3**	**M2** for $\sqrt{(8^2 - 3^2)}$ or complete alternate me or **M1** for $x^2 + 3^2 = 8^2$ or better
	(b) 67.97 to 68(.0) cao	**2**	**M1** for $\cos(y) = \frac{3}{8}$ oe
18	**(a)** 75	**2**	**M1** for $\frac{500 \times 5 \times 3}{100}$ oe or **SC1** for answer of 575
	(b) 3.81(25)	**4**	**M2** for $500 \times 1.05 \times 1.05 \times 1.05$ or **M1** for $500 \times 1.05 \times 1.05$ **A1** for 578.81(25) or 78.81(25) seen and **A1ft** for value of $500(1.05)^3 - 500$ – their **(a)**