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## **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

0580/12

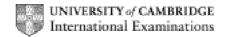
Paper 1 (Core), maximum raw mark 56

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Page 2	Mark Scheme: Teachers' version	Syllabus	Paper
	IGCSE – October/November 2010	0580	12

## **Abbreviations**

cao correct answer only correct solution only cso

dep dependent

follow through after error ft ignore subsequent working or equivalent isw

oe SCSpecial Case

without wrong working www

Qu.	Answers	Mark	Part Marks
1	134	1	
2	512(.00)	1	
3	(a) -7	1	
	<b>(b)</b> (+)6	1ft	ft -1 - their (a)
4	$1.43 \times 10^9$ final answer	2	<b>B1</b> for answers of $1.43 \times 10^n$ ( $n \ne 0$ ) or figs 143 or $1.429() \times 10^9$ <b>SC1</b> for answer of $1.42 \times 10^9$ or $1.4 \times 10^9$
5	$899.5 \le w < 900.5$	2	B1 for 1 correct or SC1 for correct but reversed.
6	10 www	2	M1 for $15 \div 6$ soi or B1 for $\frac{6}{4} = \frac{15}{EF}$ oe or better
7	662.794 to 663.304 final answer	3	<b>M2</b> for $600 \times 1.034^3$ or <b>M1</b> for $(600 + 0.034 \times 600) \times 0.034$ or $(600 \times 1.034) \times 0.034$ and <b>M1 dep</b> correct method for the remaining time.
8	(a) $4p(2q+3r)$	2	<b>B1</b> for $p(8q + 12r)$ or $2p(4q + 6r)$ or $4p(aq + br)$ a, b integers or $4(2pq + 3pr)$
	<b>(b)</b> $(p =) \frac{s}{4(2q+3r)}$ oe	1ft	ft if p is a common factor in (a) or in working in (b)
9	(a) 245	1	
	<b>(b)</b> 360	2	M1 for $\frac{3}{7} \times 840$ or SC1 for answer 480

Page 3	Mark Scheme: Teachers' version	Syllabus	Paper
	IGCSE – October/November 2010	0580	12

10	(a) $\frac{15}{43}$ cao final answer	1	If zero in (a) and (b) then SC1 if both (a) and (b) are correct decimals or percentages as answers.  (Mark as 0 for (a) and SC1 for (b))
	<b>(b)</b> $\frac{42}{43}$ cao final answer	1	
	(c) 0 or $\frac{0}{43}$	1	
11	(a) (x=) 35	2	<b>B1</b> for angle $BDC = 90$ soi May be marked on the diagram
	<b>(b)</b> ( <i>y</i> =) 55	1ft	ft 90 – their <i>x</i>
12	(a) (i) $(x=) 6$ (ii) $(x=) -2$	1 1	
	<b>(b)</b> 3	1	
13	(a) Two stage proof	2	M1 for $\frac{1 \times 7 + 2 \times 5}{5 \times 7}$ or $\frac{1 \times 7}{5 \times 7} + \frac{2 \times 5}{5 \times 7}$ or alt $\frac{4}{5} - \frac{2}{7}$ or $\frac{5}{7} - \frac{1}{5}$ M1dep for 1– their $\frac{17}{35}$ or $\frac{18}{35} + \frac{17}{35} = \frac{35}{35}$ or alt $\frac{28-10}{35}$ oe or $\frac{25-7}{35}$ oe
	<b>(b)</b> $\frac{6}{35}$ final answer	2	M1 for $\frac{1}{3} \times \frac{18}{35}$ oe  If zero SC1 for answer of $\frac{12}{35}$
14	(a) (i) $\frac{10 \times 8 - 0.5 \times 90}{5}$	1	
	(ii) 7(.0) cao	2	<b>B1</b> for 80 (from $10 \times 8$ ) or 45 (from $0.5 \times 90$ ) or 5 (denominator) seen
	<b>(b)</b> 5.92 or 5.919()	1	
15	(a) (i) 175 (ii) 70	1 1	
	<b>(b)</b> 2 points plotted correctly (±1mm).	1	
	(c) Positive	1	

Page 4	Mark Scheme: Teachers' version	Syllabus	Paper
	IGCSE – October/November 2010		12

16	(a) Rotation or enlargement 180° (SF) -1 (about or centre) origin oe	1 1 1	Two transformations named, zero for (a) Independent Independent
	(b) Correct translation 5 right and 3 down	2	<b>B1</b> for 5 right or 3 down applied
17	(a) $\begin{pmatrix} -12 \\ -3 \end{pmatrix}$	2	<b>B1</b> for 1 component correct.
	(a) $\begin{pmatrix} -12 \\ -3 \end{pmatrix}$ (b) $\begin{pmatrix} -3 \\ 3 \end{pmatrix}$	1	
	(c) (i) Vector <b>AB</b> drawn (ii) 134° to 136°	1 1	Diagonal line, ignore working lines
18	(a) (i) 12.7 to 12.73	2	M1 for $\frac{x}{18} = \sin 45$ or $\frac{x}{18} = \cos 45$ or better
	(ii) 161 to 162.1	2ft	M1 for method for squaring their (a)(i).
	<b>(b)</b> 254 to 255	2	<b>M1</b> for $\pi \times 9^2$