

**CAMBRIDGE INTERNATIONAL EXAMINATIONS**

Cambridge International General Certificate of Secondary Education

**MARK SCHEME for the October/November 2015 series**

**0580 MATHEMATICS**

**0580/33**

Paper 3 (Core), maximum raw mark 104

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 October/November 2015 series for most Cambridge IGCSE<sup>®</sup>, Cambridge International A and AS Level components and some Cambridge O Level components.

Page 2	Mark Scheme	Syllabus	Paper
	Cambridge IGCSE – October/November 2015	0580	33

### 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	Answer	Mark	Part marks		
1	(a)	9 hours 5 minutes	2	<b>B1</b> for 17 hrs 5 mins or using 1030 or 1135	
	(b)	(i)	12034	3	<b>M2</b> for $290 \times 37 + 163 \times 8$ or <b>M1</b> for either $290 \times 37$ or $163 \times 8$
		(ii)	84.9	2	<b>M1</b> for $(37 + 8) \div 53$ or better
		(iii)	9628	1	
	(c)		100.5	1	<b>SC1</b> for correct but reversed
			101.5	1	
	(d)	(i)	Copenhagen 3 Helsinki 5 St Petersburg 10 Stockholm 4 Tallinn 8	2	<b>B1</b> for 3 or 4 correct or fully correct tallies if frequency column blank or correct frequencies in tally column
(ii)		Correct bar chart	3FT	<b>B3</b> All bars correct height same width and same gaps between bars and linear scale  <b>B2</b> for all bars correct height same width and same gaps between bars  <b>B1</b> for linear scale on y-axis  <b>B1 FT</b> 3 or 4 correct heights	
2	(a)	4800		<b>M2</b> for 1 correct value in correct place	
		7200	3	<b>M1</b> for $21600 \div (2 + 3 + 4)$ or better	
		9600		If zero scored <b>SC1</b> for all correct values in incorrect order	
	(b)	(i)	4200	2	<b>M1</b> for $0.3 \times 14000$ oe
		(ii)	$\frac{4}{7}$ cao	2	<b>B1</b> for correct fraction other than $\frac{8000}{14000}$
(iii)	1200	2 FT	<b>M1FT</b> for $(14000 - \text{their (b)(i)} - 8000 - 600)$		

Page 3	Mark Scheme	Syllabus	Paper
	Cambridge IGCSE – October/November 2015	0580	33

Question	Answer	Mark	Part marks
(c)	20	3	<b>M2</b> for $(1 - 17280 \div 21600) \times 100$ oe or <b>M1</b> for $(17280 \div 21600) \times 100$ oe  Alternative method <b>M2</b> for $\frac{21600 - 17280}{21600} \times 100$ or <b>B1</b> for $21600 - 17280$ soi 4320
(d)	422.9[0] or 422.89	3	<b>M2</b> for $5500 \times 1.025^3 [- 5500]$ oe <b>M1</b> for $5500 \times 1.025^2$ oe
3	(a) (i) 4 points correctly plotted (ii) Correct ruled line of best fit (iii) Negative (b) (i) 73 (ii) 50 to 56	2 1 1 1 <b>1FT</b>	<b>B1</b> for 3 points correctly plotted  <b>FT</b> <i>their</i> straight line of best fit if negative and <i>their</i> (b)(i)
4	(a) (i) 11 (ii) 17 (b) $48x^5$ (c) (i) 9 (ii) 343 (iii) 1 (d) (i) 6800 (ii) $\frac{1}{4}$ (iii) 6 (iv) $6.87 \times 10^8$	1 3 2 1 1 1 1 1 1	<b>M1</b> for $8y + 28 = 164$ or $2y + 7 = 41$ <b>M1 FT</b> for a correct further step <b>M1</b> for $48x^k$ or $jx^5$ Accept $\pm 9$  Accept equivalent fraction
5	(a) (i) Radius (ii) Chord	1 1	

Page 4	Mark Scheme	Syllabus	Paper
	Cambridge IGCSE – October/November 2015	0580	33

Question	Answer	Mark	Part marks	
(b) (i)	90	1		
	Angle [ in a ] semi-circle	1		
	(ii)	25	1	
		Angles [ in a ] triangle [add to] 180°	1	
	(iii)	65	1FT	
		Angle [between] radius and tangent is 90° oe	1	
(iv)	65	1FT		
	Alternate angles	1		
6 (a) (i)	Blue	1		
	(ii)	$\frac{2}{16}$ oe	1	
	(b) (i)	4.52 or 4.523 to 4.524...	3	M2 for $1.5^2\pi - 0.9^2\pi$ or better or M1 for either $1.5^2\pi$ or $0.9^2\pi$ or better
		(ii)	9.42 or 9.43 or 9.424 to 9.426	2
	(iii)	2.6[0]	2	M1 for $20 - (12 \times 1.45)$
7 (a) (i)	8	1		
	(ii)	6	2FT	M1 for $\frac{their 8 \times 15}{20}$ or $\frac{2}{5} \times 15$ oe
	(b) (i)	30 or 29.6 to 30.4	1	
		(ii)	Arc 7 cm from B	1
		Arc 6 cm from C	1	If 0, 0 scored then SC1 for two correct arcs that intersect once
		Correct area shaded	1 dep	Dependent on an attempt at 2 arcs
	(iii)	6500	1	

Page 5	Mark Scheme	Syllabus	Paper
	Cambridge IGCSE – October/November 2015	0580	33

<b>8</b>	<b>(a)</b>	$5x + 3$	<b>3</b>	<b>B2</b> for $5x + c$ or $kx + 3$ $k$ not equal 0  or <b>M1</b> for attempt at $\frac{\text{Rise}}{\text{Run}}$	
	<b>(b) (i)</b>	10, 3, -5	<b>3</b>	<b>B1</b> for each correct	
	<b>(ii)</b>	Correct curve	<b>4</b>	<b>B3FT</b> for 7 or 8 points correctly plotted <b>B2FT</b> for 5 or 6 points correctly plotted <b>B1FT</b> for 3 or 4 points correctly plotted	
	<b>(iii)</b>	-0.5 to -0.4 and 4.4 to 4.5	<b>2FT</b>	<b>B1FT</b> for each correct	
<b>9</b>	<b>(a) (i)</b>	Correct rotation	<b>2</b>	<b>B1</b> for correct rotation with incorrect centre used	
	<b>(ii)</b>	Correct reflection	<b>2</b>	<b>B1</b> for reflection in $x = k$ or $y = -1$	
	<b>(iii)</b>	Enlargement [Scale factor] 0.5 oe [Centre] (7, 4)	<b>1</b>		
			<b>1</b>		
			<b>1</b>		
	<b>(b) (i)</b>	(5, -2)	<b>1</b>		
<b>(ii)</b>	$\begin{pmatrix} -3 \\ -5 \end{pmatrix}$	<b>1</b>			
<b>(iii)</b>	Z plotted at (3,4)	<b>1</b>			
<b>10</b>	<b>(a)</b>	15 20	<b>2</b>	<b>B1</b> for 1 correct row or column	
		16 21			
	<b>(b) (i)</b>	$5n$ oe final answer	<b>1</b>	<b>1 FT</b>	<b>FT</b> algebraic expression
		$5n + 1$ oe final answer			
	<b>(c)</b>	100	<b>1</b>		
101		<b>1</b>			