

**CAMBRIDGE INTERNATIONAL EXAMINATIONS**

Cambridge International General Certificate of Secondary Education

## **MARK SCHEME for the October/November 2014 series**

### **0580 MATHEMATICS**

**0580/33**

Paper 3 (Core), maximum raw mark 104

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<b>Page 2</b>	<b>Mark Scheme</b>	<b>Syllabus</b>	<b>Paper</b>
	<b>Cambridge IGCSE – October/November 2014</b>	<b>0580</b>	<b>33</b>

### Abbreviations

cao	correct answer only
dep	dependent
FT	follow through after error
isw	ignore subsequent working
oe	or equivalent
SC	Special Case
nfw	not from wrong working
soi	seen or implied

Qu.	Answers	Mark	Part Marks
<b>1</b>	<b>(a) (i)</b> 4, 5, 3, 6, 2	<b>2</b>	<b>B1</b> for 3 correct or for fully correct tally or for 4 5 6 3 2 in tally column
	<b>(ii)</b> Correct bar chart	<b>3FT</b>	<b>B1</b> for linear vertical scale to at least 6 <b>B2</b> for all bars correct height and equal width bars Or <b>B1</b> for unequal widths or at least four bars correct height and equal width
	<b>(b)</b> $\frac{14}{24}$ oe or 0.583[3...] or 58.3[3...]%	<b>1</b>	
	<b>(c)</b> No, 6 of each but different nos of boys and girls questioned oe	<b>1</b>	
	<b>(d) (i)</b> 2	<b>2</b>	<b>M1</b> for 12th/13th value used
<b>(ii)</b> 2.28	<b>3</b>	<b>M1</b> for $[0 \times 4] + 1 \times 6 + 2 \times 5 + 3 \times 3 + 4 \times 5 + [5 \times 0] + 6 \times 2$ <b>M1 dep</b> for <i>their</i> $57 \div 25$	
<b>2</b>	<b>(a)</b> 249.75 <b>cao</b>	<b>1</b>	
	<b>(b)</b> $1080 \times 0.8 [= 864]$	<b>1</b>	Or $1080 - 1080 \times 0.2$
	<b>(c) (i)</b> 230.4[0]	<b>2</b>	<b>M1</b> for $864 \div (9 + 4 + 2)$
	<b>(ii)</b> $\frac{3}{5}$ <b>cao</b>	<b>2</b>	<b>B1</b> for $\frac{9}{15}$ oe
	<b>(d) (i)</b> 488.75	<b>2</b>	<b>M1</b> for $425 (1 + 0.15)$ oe
	<b>(ii)</b> 19.15	<b>2FT</b>	<b>M1</b> for <i>their</i> <b>(d)(i)</b> $\times 0.52 [= 254.15]$
	<b>(e) (i)</b> 12.5	<b>1</b>	
<b>(ii)</b> 172.93	<b>3</b>	<b>M2</b> for $1225 \times 1.045^3 [= 1397.93]$ Or <b>M1</b> for $1225 \times 1.045 \times 1.045$ seen	

Page 3	Mark Scheme	Syllabus	Paper
	Cambridge IGCSE – October/November 2014	0580	33

3	(a)	10	1		
	(b)	Before, steeper gradient oe	1		
	(c)	11 20	1		
	(d)	(i)	1 hour 48 minutes	2	M1 for $\frac{18}{10} [\times 60]$ oe
		(ii)	Correct ruled lines drawn	2	B1 line from (11 20, 18) to (12 10, 18) B1FT for line ( <i>their</i> 12 10, 18) to (13 58, 0)
	(e)	(i)	10 57	1	
		(ii)	24	1	
	(f)	Bearing $110^\circ$ Length 3.25 cm	1 1		
4	(a)	(i)	85	1	
		(ii)	10	1FT	FT 95 – <i>their</i> (i)
	(iii)	320	1FT	FT 330 – <i>their</i> (ii)	
	(iv)	95	1		
	(v)	95	1FT	FT <i>their</i> (iv)	
	(vi)	55	1FT	FT 150 – <i>their</i> (iv)	
	(vii)	BCE and GCF or BCD and GCH or CED and CFH	1		
	(b)	(i)	$30^\circ$	2	M1 for $360 \div 12$
		(ii)	$150^\circ$	1FT	FT 180 – <i>their</i> (i)

Page 4	Mark Scheme	Syllabus	Paper
	Cambridge IGCSE – October/November 2014	0580	33

5	(a) (i)	-2	2	M1 for change in $y$ / change in $x$ for two correct points
	(ii)	$-2x + 3$	1FT	FT <i>their</i> gradient
	(b) (i)	6, 7, 6, -9	3	B2 for 3 correct Or B1 for 2 correct
	(ii)	8 points correctly plotted Correct smooth curve	3FT 1	B2FT for 6 or 7 points correctly plotted B1FT for 4 or 5 points correctly plotted
	(iii)	-3.8 to -3.5 and 1.5 to 1.8	2FT	B1FT for one correct
	(c)	(1.6 to 1.9, -0.7 to -0.2) and (-1.9 to -1.6, 6.2 to 6.7)	2FT	FT intersection of line with <i>their</i> curve B1 for one correct
6	(a)	$2x - 3$	1	
	(b)	$5x - 4$	2	M1FT for $2x - 3 + x + 2 + \textit{their} (2x - 3)$ oe
	(c) (i)	$4x + 4$	2	M1 for $2 \times [3(x - 4) + 14 - x]$ oe
	(ii)	8	2FT	FT correct solution of <i>their</i> equation M1FT for <i>their</i> $(5x - 4) = \textit{their} (4x + 4)$
	(d)	12, 6	2FT	B1FT for each
	(e)	72	1FT	FT <i>their</i> length $\times$ width
7	(a)	10 12 20 14 18 34	5	B4 for 5 correct B3 for 4 correct B2 for 3 correct B1 for 2 correct
	(b) (i)	$2n + 4$ oe final answer	2	B1 for $2n + k$ or $jn + 4$ $j \neq 0$
	(ii)	$4n + 2$ oe final answer	2	B1 for $4n + k$ or $jn + 2$ $j \neq 0$
	(c)	B [by] 15 [tables]	3	M1FT for <i>their</i> $(2n + 4) = 66$ or <i>their</i> $(4n + 2) = 66$ and A1FT for $n = 31$ or $n = 16$

Page 5	Mark Scheme	Syllabus	Paper
	Cambridge IGCSE – October/November 2014	0580	33

8	(a) (i)	[Triangular] prism	1	
	(ii)	Correct net	3	<b>B1</b> for 3 rectangles and two triangles, one on each side, even if incorrect sizes <b>B1</b> for three correct ruled rectangles <b>B1</b> for two correct ruled equilateral triangles
	(iii)	109.86 <b>cao</b>	1	
	(iv)	115 <b>cao</b>	1	
	(b) (i)	70.7 or 70.68 to 70.695	3	<b>M2</b> for $\pi \times 1.5^2 \times 10$ Or <b>B1</b> for 1.5 seen Or <b>SC2</b> for answer 283 or 282.74 to 282.78
	(ii)	37.7 or 37.69 to 37.704	3	<b>M2</b> for $\pi \times 3 \times 4$ Or <b>M1</b> for $\pi \times 3$
9	(a) (i)	Line $x = 1$ drawn	1	
	(ii)	Correct reflection	1FT	<b>FT</b> reflection in their drawn line
	(iii)	Correct rotation	2	<b>B1</b> for clockwise rotation $90^\circ$ about origin or correct orientation incorrect position
	(b) (i)	Translation $\begin{pmatrix} -3 \\ -4 \end{pmatrix}$	<b>B1</b> <b>B1</b>	Accept 3 left 4 down
	(ii)	Enlargement [scale factor] 2 [centre] (6, 0)	<b>B1</b> <b>B1</b> <b>B1</b>	