

**CAMBRIDGE INTERNATIONAL EXAMINATIONS**  
Cambridge International General Certificate of Secondary Education

## **MARK SCHEME for the March 2015 series**

<b>0580 MATHEMATICS</b>	
<b>0580/32</b>	Paper 3 (Paper 32 – Core), maximum raw mark 104

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Page 2	Mark Scheme	Syllabus	Page
	Cambridge IGCSE – March 2015	0580	32

### 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.	Answers	Mark	Part Marks
<b>1 (a)</b>	<b>(i)</b> Violet	<b>1</b>	
	<b>(ii)</b> $\frac{50}{100}$ oe	<b>1</b>	
	<b>(iii)</b> 8:3	<b>2</b>	<b>M1</b> for 32:12 or better or 80:30 or better <b>SC1</b> for 3:8 or 6:7
	<b>(iv)</b> 68	<b>3</b>	<b>M2</b> for $0.35 \times 280 - 0.12 \times 250$ or better or <b>M1</b> for $0.35 \times 280$ or $0.12 \times 250$ seen
	<b>(v)</b> True, False, True	<b>2</b>	<b>B1</b> for 2 correct
	<b>(vi)</b> [The] percentage is [smaller but it is] of a larger [total] number [of dresses]	<b>1</b>	
<b>(b)</b>	237.25	<b>4</b>	<b>B1</b> for 5.5 and 4.6 seen <b>M1FT</b> for <i>their</i> $5.5 \times 12.50 + \textit{their} 4.6 \times 12.50$ or better <b>M1</b> for $6 \times 2 \times 9.25$ or better OR <b>M1FT</b> for <i>their</i> $5.5 \times 12.50 + 6 \times 9.25$ <b>M1FT</b> for <i>their</i> $4.6 \times 12.50 + 6 \times 9.25$
<b>2 (a)</b>	67.5 72.5	<b>1</b> <b>1</b>	<b>SC1</b> for both answers correct but reversed
	<b>(b) (i)</b> 3	<b>1</b>	
	<b>(ii)</b> 20	<b>1</b>	
	<b>(iii)</b> 21	<b>2</b>	<b>M1</b> for 7 or more in order
	<b>(iv)</b> 20.9 or 20.91 to 20.92	<b>2</b>	<b>M1</b> for clear attempt to add numbers and divide by 12
	<b>(v)</b> $\frac{3}{12}$ oe	<b>1</b>	
	<b>(c)</b>	complete correct method shown and Bag B oe	<b>3</b>
<b>(d)</b>	1.56	<b>2</b>	<b>M1</b> for $(100 - 35) \times 2.40 / 100$ oe

Page 3	Mark Scheme	Syllabus	Page
	Cambridge IGCSE – March 2015	0580	32

3	(a) (i)	4 points correctly plotted	2	B1 for 3 correct points	
	(ii)	positive	1		
	(iii)	correct ruled straight line	1		
	(iv)	74	1FT		Strict fit their line
	(b) (i)	$22 < \text{ans} \leq 23$	1		
	(ii)	$590 \leq \text{ans} \leq 620$	2		M1 for $\frac{275}{\text{their} \cdot 50} \times \text{their} \cdot 110$ oe
4	(a)	126	1	Accept 122 to 130	
	(b)	240	1		
	(c)	Correct position on diagram	2	B1 for angle $103^\circ$ to $107^\circ$ B1 for distance 4.0 cm to 4.4 cm	
	(d)	1 hour and 33 min	3	M2 for $\frac{84}{54} \times 60$ oe or M1 for $\frac{84}{54}$ or $\frac{30}{54} \times 60$	
	(e)	15	2	M1 for $\frac{54 \times 1000}{60 \times 60}$ or better	
5	(a) (i)	8, 2, -4, 2	2	B1 for 3 correct values	
	(ii)	Correctly plotted points and smooth correct curve	4		B3FT for 8 correct B2FT for 6 or 7 correct B1FT for 4 or 5 correct C1 for correct smooth curve passing below $y = -4$
	(b) (i)	$(-0.5, k)$ where $-4.5 \leq k < -4$	1		
	(ii)	$x = -0.5$	1		
	(c)	$-1.8 \leq x \leq -1.4, 0.4 \leq x \leq 0.8$	2FT		B1FT, B1FT for values from their graph
	(d) (i)	$2x - 3$	2		M1 for $\frac{\text{rise}}{\text{run}}$ or better If zero scored, SC1 for $kx - 3$
6	(a)	correct net drawn	2	B1 for 2 correct faces seen added to correct edges of net	
	(b)	60,1,1 or 30,2,1 or 20,3,1 or 15,4,1 or 15,2,2 or 12,5,1 or 10,6,1 or 10,3,2 or 6,5,2 or 5,4,3	2	SC1 for 3 numbers with a product of 60 but including non-integer values	

Page 4	Mark Scheme	Syllabus	Page
	Cambridge IGCSE – March 2015	0580	32

	(c)	24 cm <sup>2</sup>	2 1	M1 for $2 \times 2 \times 6$ oe
	(d)	900	1	
	(e) (i)	7.55 or 7.549.....	3	M2 for $\sqrt{(11^2 - 8^2)}$ or M1 for $AB^2 + 8^2 = 11^2$
	(ii)	43.3 or 43.34	2	M1 for $\cos [C] = \frac{8}{11}$ or better
	(f)	120 or 120.16 to 120.2	4	B1 for 6.5 seen M2 for <i>their</i> $6.5^2\pi - \text{their } 2^2\pi$ (must be using $\pi r^2$ ) or M1 for $6.5^2\pi$ or $2^2\pi$ seen If M0 scored, SC1 for $165\pi$ or $518(.3)$ to $518.43$ or $41.25\pi$ or $129.59....$ to $129.6075$
7	(a) (i)	Correct bisector drawn with 2 pairs of arcs	2	B1 for correct bisector without arcs
	(ii)	Correct arc radius 6 cm centre D	1	
	(iii)	Correct shaded region	1	
	(b)	Two different correct triangles drawn	4	B1, B1 for $40^\circ$ angle at each Y B1 for one $XZ = 5$ cm drawn B1dep on previous 3 marks for a different correct $XZ = 5$ cm drawn resulting in a second correct triangle If zero scored, SC1 SC1 available for triangles drawn with $40^\circ$ at X
8	(a)	$4^2, 4 \times 5$ $8^2, 4 \times 9$ $101^2, 99^2$ $(n + 1)^2, (n - 1)^2$	1 1 1 2	SC1 for $(n + 1)^2$ or $(n - 1)^2$ seen or for $n + 1^2$ and $n - 1^2$
	(b) (i)	23	1	
	(ii)	$4n - 1$ oe	2	M1 for $4n$ seen
	(iii)	227	1FT	FT from (b)(ii) if in form $jn + k$ $j, k \neq 0$
	(iv)	No, oe, with valid reason	2	M1FT for (227), (231), 235 or ft from their (b)(iii) or 59.5 or ft $\frac{\text{their(b)(ii)} - k}{j}$ A1 for correct deduction and mention of 237 between 235 and 239 or 59.5 is not a whole number oe

Page 5	Mark Scheme	Syllabus	Pe
	Cambridge IGCSE – March 2015	0580	32

9	(a) (i)	41	1	
	(ii)	$6.8921 \times 10^4$	1	
	(iii)	69 000	1	
	(b)	8%	3	M2 for $\frac{96550 - 88826}{96550} \times 100$ oe or M1 for 7724 seen or $\frac{88826}{96550}$
	(c) (i)	$\frac{1}{25}$ or 0.04	1	
	(ii)	5	1	
	(iii)	Has more than 2 factors oe	1	
	(iv)	A decimal that is not truncated and it does not recur (or can't be written as a fraction) oe	1	