

CAMBRIDGE INTERNATIONAL EXAMINATIONS

Cambridge International General Certificate of Secondary Education

MARK SCHEME for the March 2015 series

0580 MATHEMATICS

0580/32

Paper 3 (Paper 32 – Core), maximum raw mark 104

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

Page 3	Mark Scheme	Syllabus	Paper
	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 $\frac{275}{\text{their} \cdot 50} \times \text{their} 110$ oe
4	(a)	126	1	Accept 122 to 130	
	(b)	240	1		
	(c)	Correct position on diagram	2		B1 for angle 103° to 107° 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	Paper
	Cambridge IGCSE – March 2015	0580	32

(c)	24 cm ²	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 πr^2) or M1 for $6.5^2\pi$ or $2^2\pi$ seen If M0 scored, SC1 for 165π or $518(.3)$ to 518.43 or 41.25π 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° 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° at X
8 (a)	4 ² , 4 × 5 8 ² , 4 × 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	Paper
	Cambridge IGCSE – March 2015	0580	32

9	(a) (i)	41	1	
	(ii)	6.8921×10^4	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	