

MARK SCHEME for the October/November 2012 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 2012 series for most IGCSE, GCE Advanced Level and Advanced Subsidiary Level components and some Ordinary Level components.

Page 2	Mark Scheme	Syllabus	Paper
	IGCSE – October/November 2012	0580	33

Abbreviations

cao	correct answer only
cso	correct solution only
dep	dependent
ft	follow through after error
isw	ignore subsequent working
oe	or equivalent
SC	Special Case
www	without wrong working

Qu.	Part	Answers	Mark	Part Marks
1	(a)	2 hours 45 minutes oe	1	M1 $5 \div 0.25$ or $5000 \div 250$ B1 correctly scaled frequency axis B2 correct height of bars, width and spaces or B1 correct height of 5 or 6 bars or all bars correct height but unequal widths or gaps
	(b)	26 000	1	
	(c)	20	2	
	(d)	(i) fully correct bar chart	3	
		(ii) 1	1	
		(iii) 1.97 (1.9655....)	3	
2	(a)	(i) stopped	1	M1 $180 \div$ their (a)(ii) ft correct to 3 sig figs
		(ii) 5 hours 30 mins or 5 ½ hours	1	
		(iii) 32.72 – 32.73 or 32.7	2 ft	
		(iv) 10(00) and 12(00)	1	
		(v) Line or curve from 1100,0 to 1530,180	1	
	(b)	(i) (0)355 or 3.55 am	2	
		(ii) 26° or –26°	1	
	(c)	135.43 cao	2	

Page 3	Mark Scheme	Syllabus	Paper
	IGCSE – October/November 2012	0580	33

3	(a)	240000	1	
	(b)	1200, 450, 750	3	SC2 for all three correct in wrong order seen SC1 for $2400 \div 16$ implied by 150
	(c)	224973	3	M2 224972.8 or 200000×1.04^3 or 224793.0(0) if M0 M1 200000×1.04^2 or 216320 SC1 for their answer correctly rounded to nearest dollar
	(d)	(i) 2250 900 36 (ii) 2 correct sectors correct labels	1,1,1 1 1	If first B0,B0 then SC1 for adding to 3150 Must only be 4 sectors in total
4	(a)	(i) 2.5 or $5/2$ or $2\frac{1}{2}$ (ii) 4.5 or $9/2$ or $4\frac{1}{2}$	2 3	M1 $6x - 2x = 8 + 2$ or better M1 $8y - 12$ or $2y - 3 = 6$ M1 $8y = 36$ ft or $2y = 9$ ft <i>their</i> first step
	(b)	(x =) 3, (y =) -4	4	M1 coefficient of x or y the same dep M1 for addition or subtraction A1 for 1 correct answer (their first answer)
5	(a)	Parallelogram	1	
	(b)	Rotation, 90° clockwise, about origin	1,1,1	
	(c)	(i) Correct reflection	2	B1 reflection in the x axis
		(ii) Correct translation	2	B1 for translation -6,k or k,-4
		(iii) Correct enlargement	2	B1 Correct size, wrong position
6	(a)	(i) 3 - 1	1,1	If B0 award B1 if term 2 - term 1 = - 4
		(ii) subtract 4	1	Accept minus 4, take away 4
		(iii) $-4n + 23$ oe final answer	2	M1 $-4n + k$ or $jn + 23$ ($j \neq 0$) as answer
	(b)	8, 10, 12	2	M1 2 correct terms SC1 for 6, 8, 10
	(c)	27, $3n + 3$ oe final answer	3	B1 27 B1 $3n + k$ or $jn + 3$ ($j \neq 0$)

Page 4	Mark Scheme	Syllabus	Paper
	IGCSE – October/November 2012	0580	33

7	(a)	63 (Angles on a straight) line (add to) 180	1 1	
	(b)	90 (Angle in a) semi circle	1 1	
	(c)	117 Corresponding (angles)	1 1	
	(d)	90 Tangent and radius	1 1	
8	(a)	5.4(0)	2	M1 $\tan 42 = DF/6$ or better
	(b)	32.4	2ft	M1 $\frac{12 \times \text{their } 5.4}{2}$ ft
	(c)	5.66	3	M2 $\sqrt{6^2 - 2^2}$ or better (accept $\sqrt{32}$ or 5.65) or M1 $6^2 - 2^2$ or better (accept 32)
	(d)	64	2	M1 $12 + 18 + 14 + 3 + 2 + 15$
	(e)	33.3 cao	4	M1 $(12 \times 18) + (\text{their } (2) \times 3)$ oe and A1 222 and M1 $\text{their } 222 \text{ ft} \times 0.15$
9	(a)	-1, -5, -1, 4	3	B2 3 correct B1 2 correct
	(b)	8 correct points plotted Smooth curve through 8 correct points and correct shape	3ft 1	B2ft 6 or 7 points plotted ft B1ft 4 or 5 points plotted ft
	(c)	(i) $x = -1$ drawn (ii) $x = -1$ oe cao	1 1	
	(d)	1.8 to 1.9 and -3.8 to -3.9	2 ft	B1 B1

Page 5	Mark Scheme	Syllabus	Paper
	IGCSE – October/November 2012	0580	33

10	(a)	(i) 14.8 to 15.2	2	M1 7.4 to 7.6
		(ii) D correctly marked $133-137^\circ$ and $4.3-4.7$ cm from A	2	B1 for correct bearing or distance.
		(iii) 260 to 264°	1	
	(b)	(i) $3.24(1) \times 10^5$	1	
		(ii) C by 2.477×10^5 or 2.48×10^5	3	SC2 for C by figs 2477 or figs 248 M1 324100 – 76400 or <i>their</i> (b) – 7.64×10^4 evaluated