www.PapaCambridge.com

UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS
International General Certificate of Secondary Education

CAMBRIDGE IGCSE MATHEMATICS (US) **0444/03**

Paper 3 (Core) **For examination from 2012**

SPECIMEN SCORING GUIDE

MAXIMUM SCORE: 104

This document consists of **6** printed pages.

© UCLES 2011

UNIVERSITY of CAMBRIDGE
International Examinations

www.PapaCambridge.com

Types of score

M scores are given for a correct method.
A scores are given for an accurate answer following a correct method.
B scores are given for a correct statement or step.
D scores are given for a clear and appropriately accurate drawing.
P scores are given for accurate plotting of points.
E scores are given for correctly explaining or establishing a given result.
SC scores are given for special cases that are worthy of some credit.

Abbreviations

art	anything rounding to
cao	correct answer only
cso	correct solution only
ft	follow through
isw	ignore subsequent working
oe	or equivalent
soi	seen or implied
ww	without working
www	without wrong working

1	14 292	**B4**	**M2** for $12\,000 \times (1.06)^3$ or **M1** for $(12\,000 + 12000 \times 0.06) \times 0.06$ and **M1 dep** correct method for the next 2 years **A1** cao (\$)14 292(.19(2)) **B1 ft** their answer rounded to the nearest dollar If **M0** then maximum **SC2** for 2292 or **SC1** for 2292.2 or 2292.19(2) or 2300 **[4]**
2 (a)	Isosceles	**B1**	
(b)	$p = 50$	**B1**	
	$q = 80$	**B1 ft**	ft for $180 - 2p$
	$r = 50$	**B1 ft**	ft for $= p$
	$s = 50$	**B1 ft**	ft for $= p$
	$t = 80$	**B1 ft**	ft for $= q$ or $180 - 2p$ **[6]**

www.PapaCambridge.com

3	**(a) (i)**	135 (green)	**B1**	
	(ii)	75 (yellow)	**B1**	
	(iii)	Ruled lines correct to 2°	**B1**	Only if **(a)(i)** + **(a)(ii)** = 210°
		3 correctly labeled sectors	**B1**	Independent of previous marks
	(b) (i)	$\frac{10}{24}$ oe	**B1**	Accept decimals, percentages
	(ii)	$\frac{15}{24}$ oe	**B1**	
	(iii)	$\frac{19}{24}$ oe	**B1**	
	(c) (i)	0	**B1**	
	(ii)	1	**B1**	**SC1** for $\frac{0}{12}$ and $\frac{12}{12}$ or $\frac{0}{24}$ and $\frac{24}{24}$ in parts **(i)** and **(ii)**
	(d)	Labeled arrows correctly positioned by eye	**B3 ft**	1 mark for each ft their probabilities from **(b)** **[12]**
4	**(a)**	1	**B1**	
	(b)	1	**B1**	accept 'no rotational symmetry'
	(c)	Correct rotation drawn	**B2**	**SC1** for 180° rotation about any other point **SC1** for ±90° rotation about O
	(d)	reflection (only) in x-axis oe	**B1** **B1**	must be a single transformation enlargement, s.f. = −1, centre (0, 0) is **B2** **[6]**
5	**(a)**	0.68×450	**M1**	
		306	**A1**	
		$2 \times 450 + 306$ (= 1206)	**M1 dep**	allow 900 or 450 + 450 **SC3** for 2.68×450 (= 1206)
	(b)	2814	**B3**	**M1** for 1206 ÷ 6 (implied by 201) or 450 ÷ 6 or 306 ÷ 6 and **M1 dep** for × (6 + 5 + 3) oe or **SC2** for 1206 + 1005 + 603
	(c)	4955	**B2**	**M1** for 500×9.91 implied by figs 4955 **[8]**

www.PapaCambridge.com

6 (a) (i)	6	**B2**	**M1** for $6x = 36$ or $3x = 18$ oe
(ii)	72	**B2 ft**	Follow through $2 \times$ **(a)(i)** $\times$ **(a)(i)** **M1 ft** for 6×12, 2×36, $2 \times 6 \times 6$
(b) (i)	1.5 or $1\frac{1}{2}$ or $\frac{3}{2}$	**B2**	**M1** for $3y - y = 3$ oe [unknown on one side]
(ii)	$4z + 2 = 10z - 1$	**B1**	accept any equivalent equation in z if **(b)(ii)** is left blank may recover mark if $4z + 2 = 10z - 1$ seen in **(b)(iii)**
(iii)	0.5 or $\frac{1}{2}$ or $\frac{3}{6}$	**B3**	**B1** for correct single z term and **B1** for correct single constant term
(c) (i)	$a - b = 3$ oe	**B1**	
	$4a + b = 17$ oe	**B1**	if **(c)(i)** is left blank may recover mark(s) with $a - b = 3$, $4a + b = 17$, $5a = 20$ seen in **(c)(ii)**
(ii)	($a =$) 4 and ($b =$) 1	**B3**	**B2** for *either* ($a =$) 4 *or* ($b =$) 1 or **M1 ft** for *correctly* eliminating one of the variables **[15]**
7 (a)	8 7 10 9 8 18	**B3**	**B2** for 4 or 5 correct, **B1** for 2 or 3 correct accept tallies if in 5's, accept $\frac{8}{60}$, $\frac{7}{60}$ etc
(b)	6	**B1**	
(c)	4	**B2**	**M1** for evidence of ranking (cum. freq.)
(d)	3.9	**B3**	**M1 ft** for $8 \times 1 + 7 \times 2 + 10 \times 3 + 4 \times 9 + 5 \times 8 + 6 \times 18$ or $8 + 14 + 30 + 36 + 40 + 108$ (min 3) (or 236) **M1 ft dep** for /60 [both **M** marks may be by the table] answer of 3.93(3333) is **M2** implied 39.3(33...) is **M1** implied **[9]**

www.PapaCambridge.com

8	**(a)**	−6, −12, −36, 36, 12, 6	**B3**	**B1** for ±36, **B1** for ±12, **B1** for ±6, or **SC1** for any 3 correct
	(b)	12 points plotted correct points ft within 1 mm	**P3 ft**	**P2 ft** for 10 or 11, **P1 ft** for 8 or 9
		2 curves drawn	**D1**	must be smooth branches of rectangular hyperbola (not joined)
	(c)	1.6 to 1.8	**B1 ft**	Follow through their reading at $y = 21$
	(d)	36, 9, 0, 9, 36	**B2**	**B1** for 4 correct
	(e)	13 points plotted correct points ft within 1 mm	**P3 ft**	**P2 ft** for 11 or 12, **P1 ft** for 9 or 10
		curve drawn	**D1**	must be smooth parabola
	(f)	3.3, 10.9	**B1**	x from 3.2 to 3.4, y from 10.0 to 12.0 **[15]**
9	**(a) (i)**	43.0 art or 43	**B2**	**M1** for $\pi \times 3.7^2$
	(ii)	10.0 art or 10	**B2 ft**	ft 430 ÷ their **(a)(i)** evaluated to 3sf or better **M1** for 430 ÷ their **(a)(i)** ft
	(b) (i)	(length) = 22.2	**B1**	accept length and width interchanged
		(width) = 14.8	**B1**	
		(height) = 20	**B1 ft**	ft is 2 × their **(a)(ii)**
	(ii)	6570 art	**B2 ft**	ft is their L × W × H from **(b)(i)** **M1** for L × W × H ft (substituted)
	(iii)	78.5 (%) art	**B3 ft**	ft is 5160 ÷ their **(b)(ii)** × 100 but only if answer < 100 **B1** for 12 × 430 or 5160 and **M1** for 5160 ÷ their **(b)(ii)** × 100 **[12]**

www.PapaCambridge.com

10 (a) (i)	tan $QPR = 10.3 \div 7.2$ 55(.0)	**M1** **E1**	**M1** for complete longer method
(ii)	125 cao	**B1**	
(b) (i)	125 – 98 or 180 – (98 + 55)	**E1**	accept 55 + 98 + 27 = 180 do not accept 180 – 153
(ii)	6.4 art	**B2**	**M1** for $14.1 \times \sin 27$ oe (allow full correct long methods) e.g., **M1** for *PR* (Pythag, sin, or cos) and *RS* (Pythag), then **A1** for 6.4 art or **M1** for *PR* (Pythag, sin, or cos) and *RS* (tan), then **A1** for 6.4 art
(iii)	38.0 art	**B1 ft**	ft is 31.6 + their **(b)(ii)**
(c)	8.44	**B2 ft**	Follow through their **(b)(iii)** ÷ 4.5 to 3sf or better **M1** for their **(b)(iii)** ÷ 4.5 **[9]**
11 (a)	42, 56 cao 71, 97 cao	**B1 B1** **B1 B1**	
(b)	$n(n + 1)$ oe	**B2**	**M1** for attempt at length × width involving n or nth(nth + 1) or $k(k + 1)$ where k is any variable
(c)	12	**B2**	**M1** for $2n^2 - 1 = 287$ **[8]**