

CAMBRIDGE INTERNATIONAL EXAMINATIONS

Cambridge International General Certificate of Secondary Education

MARK SCHEME for the October/November 2015 series

0444 MATHEMATICS (US)

0444/33

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 2015 series for most Cambridge IGCSE[®], Cambridge International A and AS Level components and some Cambridge O Level components.

® IGCSE is the registered trademark of Cambridge International Examinations.

Page 2	Mark Scheme	Syllabus	Paper
	Cambridge IGCSE – October/November 2015	0444	33

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	Answer	Mark	Part marks
1 (a) (i)	6800	1	
(ii)	$\frac{1}{4}$	1	Accept equivalent fraction
(iii)	6	1	
(iv)	6.87×10^8	1	
(b) (i)	9	1	Accept ± 9
(ii)	343	1	
(iii)	1	1	
(c) (i)	11	1	
(ii)	17	3	M1 for $8y + 28 = 164$ or $2y + 7 = 41$ M1 FT for a correct further step
(d)	$48x^5$	2	M1 for $48x^k$ or jx^5

Page 3	Mark Scheme	Syllabus	Paper
	Cambridge IGCSE – October/November 2015	0444	33

2	(a)	9 hours 5 minutes	2	B1 for 17 hrs 5 mins or using 10 30 or 11 35	
	(b)	(i)	12034	3	M2 for $290 \times 37 + 163 \times 8$ or M1 for either 290×37 or 163×8
		(ii)	84.9	2	M1 for $(37 + 8) \div 53$ or better
		(iii)	9628	1	
	(c)	(i)	Copenhagen 3 Helsinki 5 St Petersburg 10 Stockholm 4 Tallinn 8	2	B1 for 3 or 4 correct or fully correct tallies if frequency column blank or correct frequencies in tally column
		(ii)	Correct bar chart	3FT	B3 for all bars correct height same width and same gaps between bars and linear scale B2 for all bars correct height same width and same gaps between bars B1 for linear scale on y-axis B1 FT 3 or 4 correct heights

Page 4	Mark Scheme	Syllabus	Paper
	Cambridge IGCSE – October/November 2015	0444	33

3	(a)	4800 7200 9600	3	M2 for 1 correct value in correct place M1 for $21600 \div (2 + 3 + 4)$ or better If zero scored SC1 for all correct values in incorrect order
	(b) (i)	4200	2	M1 for 0.3×14000 oe
	(ii)	$\frac{4}{7}$ cao	2	B1 for correct fraction other than $\frac{8000}{14000}$
	(iii)	1200	2FT	M1FT for $(14000 - \text{their (b)(i)} - 8000 - 600)$
	(c)	20	3	M2 for $(1 - 17280 \div 21600) \times 100$ oe or M1 for $(17280 \div 21600) \times 100$ oe Alternative method M2 for $\frac{21600 - 17280}{21600} \times 100$ or B1 for $21600 - 17280$ soi 4320
(d)	422.9[0] or 422.89	3	M2 for 5500×1.025^3 [- 5500] oe M1 for 5500×1.025^2 oe	

Page 5	Mark Scheme	Syllabus	Paper
	Cambridge IGCSE – October/November 2015	0444	33

4	(a)	Correct explanation	1	eg 2200 is one of the larger engine sizes so the distance is probably less
	(b) (i)	4 points correctly plotted	2	B1 for 3 points correctly plotted
		(ii)	$\frac{737}{11}$	
	(iii)	Mean point plotted and line drawn through	1	1dep
		Correct ruled line of best fit		
	(iv)	Negative	1	
(c)	50 to 56	1FT	FT <i>their</i> straight line of best fit if negative	
5	(a) (i)	90	1	
		Angle [in a] semi-circle	1	
	(ii)	25	1	
		Angles [in a] triangle [add to] 180°	1	
	(iii)	65	1FT	
		Angle [between] radius and tangent is 90° oe	1	
	(iv)	65	1FT	
		Alternate angles	1	
(b) (i)	Radius	1		
	(ii)	Chord	1	

Page 6	Mark Scheme	Syllabus	Paper
	Cambridge IGCSE – October/November 2015	0444	33

6	(a) (i)	Blue	1	
	(ii)	$\frac{2}{16}$ oe	1	
	(b) (i)	4.52 or 4.523 to 4.524...	3	M2 for $1.5^2\pi - 0.9^2\pi$ or better or M1 for either $1.5^2\pi$ or $0.9^2\pi$ or better
	(ii)	9.42 or 9.43 or 9.424 to 9.426	2	M1 for $2 \times 1.5\pi$ or better
	(iii)	2.6[0]	2	M1 for $20 - (12 \times 1.45)$
7	(a) (i)	8	1	
	(ii)	6	2FT	M1 for $\frac{8 \times 15}{20}$ or $\frac{2}{5} \times 15$ oe
	(b) (i)	[trapezoidal] prism	1	
	(ii) (a)	49.6 or 49.63 to 49.64	2	M1 for $\tan(\dots) = \frac{40}{34}$ oe
	(b)	52.49 to 52.5[0]	2	M1 for $\sqrt{40^2 + 34^2}$ oe
8	(a) (i)	Correct rotation	2	B1 for correct rotation with incorrect centre used
	(ii)	Correct reflection	2	B1 for reflection in $x = k$ or $y = -1$
	(iii)	Enlargement	1	
		[Scale factor] 0.5 oe	1	
		[Centre] (7, 4)	1	
	(b) (i)	(5, -2)	1	
(ii)	$\begin{pmatrix} -3 \\ -5 \end{pmatrix}$	1		
(iii)	Z plotted at (3, 4)	1		

Page 7	Mark Scheme	Syllabus	Paper	
	Cambridge IGCSE – October/November 2015	0444	33	
9	(a) (i)	10, 3, -5	3	B1 for each correct
	(ii)	Correct curve	4	B3FT for 7 or 8 points correctly plotted B2FT for 5 or 6 points correctly plotted B1FT for 3 or 4 points correctly plotted
	(iii)	-0.5 to -0.4 and 4.4. to 4.5	2FT	B1FT for each correct
	(b)	$5x + 3$	3	B2 for $5x + c$ or $kx + 3$, k not equal 0 or M1 for attempt at $\frac{\text{Rise}}{\text{Run}}$
10	(a)	15 20 16 21	2	B1 for 1 correct row or column
	(b) (i)	$5n$ oe final answer	1	
	(ii)	$5n + 1$ oe final answer	1FT	FT algebraic expression
	(c)	100	1	
		101	1	