Cambridge International Examinations
Cambridge International General Certificate of Secondary Education

CAMBRIDGE INTERNATIONAL MATHEMATICS **0607/32**

Paper 3 (Core) **October/November 2016**

MARK SCHEME

Maximum Mark: 96

Published

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.

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Abbreviations

awrt answers which round to
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	Marks	Part Marks
1 (a)	trapezium triangle square parallelogram	**1** **1** **1** **1**	
(b) (i)	2	**1**	
(ii)	2 correct lines	**2**	**B1** for 1 correct line and no incorrect or for 2 correct lines but ⩾1 incorrect
2 (a) (i)	38	**1**	
(ii)	6	**1**	
(iii)	67	**2**	**B1** for 35 and 32 soi
(b)	4400	**2**	**B1** for 4375
(c)	5	**3**	**B2** for answer 4 or 4.25 or **M1** for (175 + 12) ÷ 44 soi
3 (a) (i)	130	**1**	
(ii)	Obtuse	**1**	
(b)	147 57 33	**1** **1** **1**	
4 (a)	Correct pattern	**1**	
(b)	13, 16	**1**	
(c)	+3 oe	**1**	
(d)	Sarah, with correct justification	**3**	**M2** for substituting one value bigger than or equal to 2 into both formulae or **M1** for any substituting into either formula

5	**(a)**	62.5 oe	**2**	**M1** for $6\frac{1}{4} \times 10$ oe
	(b)	12 min 30 sec	**4**	**B3** for 12.5 minutes seen or **M2** for 6.25 ÷ 30 × 60 oe or **M1** for 6.25 ÷ 30 oe
6	**(a)**	57	**2**	**B1** for 12 or 45 seen or **M1** for 6 × 2 + 9 × 5 seen
	(b)	$5x + 13$	**2**	**B1** for $5x$ or [+]13 seen
	(c)	$3(2x + 3y)$	**1**	
7	**(a)**	24	**2**	**M1** for 6 × 8 ÷ 2 soi
	(b)	336	**3FT**	**FT** 288 + 2×*their* (a) **M2** for 12 × 8, 12 × 10 and 12 × 6 soi or **M1** for any two of 12 × 8, 12 × 10, 12 × 6 soi
	(c)	288	**1FT**	**FT** 12×*their* (a)
8	**(a)**	16.11	**3**	**M2** for 8.95 ÷ 5 × 9 or **M1** for 8.95 ÷ 5
	(b)	1.38	**3**	**M2** for 1.20 × 1.15 oe or **M1** for 1.20 × 0.15 oe
	(c)	12	**3**	**M2** for (5.50 – 4.84) ÷ 5.50 oe or **M1** for 4.84 ÷ 5.50 oe
9	**(a)**	10	**1**	
	(b)	2	**3**	**M1** for $6x - 3 = 9$ or for $2x - 1 = 3$ **M1** for $6x = 12$ or for $2x = 4$
	(c)	$4\frac{1}{2}$ oe	**3**	**M2** for $7x - 3x$ seen and 20 − 2 seen or **M1** for $7x - 3x$ seen or 20 − 2 seen
10	**(a)**	[0.75, 1.5] 3, 6, 12, 24	**1**	
	(b)	Correct curve	**1** **1**	**B1** for correct shape **B1** for crosses y-axis at approximately 3
	(c) (i)	Correct line	**1**	Above where curve crosses y-axis
	(ii)	1.415 to 1.42	**1**	

11	**(a)**	Steve Median = 27 IQR = 13	 **1** **2**	 **B1** for 30 or 17 seen
	(b)	Tam Median = 23 IQR = 11 or 11.5	 **1** **2**	 **M1** for 28 or 28.5 or 17 seen
	(c)	Steve's plants are taller oe Tam's plants have a more consistent height oe	**1** **1**	
12	**(a)**	[0.455] 0.21, 0.335	**2**	**M1** for $n \div 200$ soi
	(b)	Large amount of trials oe	**1**	
	(c)	1675	**2**	**M1** for *their* $\frac{67}{200} \times 5000$
	(d)	0.665	**2**	**M1** for 0.455 + *their*(0.21)
13	**(a)**	1.17×10^{13}	**2**	**B1** for 9×10^{16} seen
	(b)	[0].00013	**1**	
	(c)	$\sqrt{\frac{E}{m}}$ oe	**2**	**M1** for $c^2 = \frac{E}{m}$ or **SC1** for answer $\frac{\sqrt{E}}{m}$
14		826 or 825.6 to 825.7	**6**	**M1** for 3×100 **M1** for 4×80 **M1** for 2×40 **M2** for $\frac{1}{2} \times \pi \times 80$ or **M1** for $\pi \times 80$
15	**(a)**	8.13 or 8.127…	**2**	**M1** for $4.6^2 + 6.7^2$ seen
	(b)	27.6 or 27.64…	**3**	**M2** for $10.8 \div \sin 23$ or **M1** for $\sin 23 = \frac{10.8}{y}$