

Cambridge International Examinations

Cambridge International General Certificate of Secondary Education

CAMBRIDGE INTERNATIONAL MATHEMATICS

0607/61

Paper 6 (Extended)

October/November 2016

MARK SCHEME
Maximum Mark: 40

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.

Cambridge will not enter into discussions about these mark schemes.

Cambridge is publishing the mark schemes for the October/November 2016 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 2016	0607	61

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

A	INV	ESTIGATION SQUARES C	N GRIDS	S
Qu	iestion	Answer	Mark	Part Marks
1	(a)	4 small and 1 large oe	1	
ı	(b)	9 4 1 14	1	
ı	(c)	16 9 4 1 30	1	If 0 scored in parts (b) and (c), SC1 for 1, 4, 9, 16 (i.e. reverse order)
2	(a)	Size Total 1 by 1 1 2 by 2 4 1 3 by 3 9 4 1 4 by 4 16 9 4 1 5 by 5 25 16 9 4 1 5 by 6 36 25 16 9 4 1 91	2	B1 for first 4 rows correct B1 for rows 5 and 6 correct If 0 scored in parts 1(b) and 1(c) or SC in 1(c), SC1 for first 4 rows correct, in reverse order AND SC1 for rows 5 and 6 correct, in reverse order
	(b)	Square [numbers]	1	
	(c)	204	1	C opportunity
ı	(d)	$(n-1)^{2}$ oe	1	
3	(a)	d = 0	1	
		$c = \frac{1}{6}$	1	C opportunity

Page 3	Mark Scheme	Syllabus	Paper
	Cambridge IGCSE – October/November 2016	0607	61

Ç	Question	Answer	Mark	Part Marks
	(b)	$T = \frac{1}{3}10^3 + \frac{1}{2}10^2 + \frac{1}{6}10 $ leading to 385	1	
	(c)	15	1	C opportunity
4		n	1	
5	(a)	11	1	
	(b)	2 by 1 2 0 2 2 by 2 4 1 5 2 by 3 6 2 8 2 by 4 8 3 11 2 by 5 10 4 14 2 by n 2n n-1 3n-1 oe	1 1	
6		3 by 1 3 0 0 3 3 by 2 6 2 0 8 3 by 3 9 4 1 14 3 by 4 12 6 2 20 3 by 5 15 8 3 26 3 by n 3n 2n-2 n-2 6n-4 oe	2	B1 for rows 4 or 5 correct B1 FT for <i>their</i> linear expressions in columns 3, 4 and 5
7		[n] < 3 oe	1	C opportunity
Со	mmunicat	ion: Seen in two of the following questions	1	
2	2 (c) For showing $91 + 49 + 64$ or $1 + 4 + 9 + 16 + 25 + 36 + 49 + 64$ or in tabular form			
3	(a)	For showing working of a correct method		
3	(c)	For showing working or sketch		
7		For < 2 in 2 by something and < 3 in 3 by something oe		

Page 4	Mark Scheme	Syllabus	Paper
	Cambridge IGCSE – October/November 2016	0607	61

В		MO	DELLING MEASURING	G ROD	
Q	uesti	on	Answer	Mark	Part Marks
1	(a)		Cylinder	1	
	(b)		152.7cm oe	2	M1 for $\frac{1200}{\pi \times 0.5^2}$ oe
2	(a)		Must be able to hold it oe	1	
	(b)	(i)	50	1	
		(ii)	Cross-section narrows oe	1	
3	(a)		$\frac{1}{2} \times 50 \times 50 \times \sin x$	1	
	(b)		$\frac{x}{360} \times \pi \times 50^2$	1	
			21.81x to 21.82x	1	
	(c)		$21.8x - 1250\sin x$ isw	1	
	(d)		their 3(c) × 153	1	FT their 3(c)
	(e)		Correct curve	2	B1 for correct shape B1 for passing through approximately (80, 79 000) and approximately (150, 406 000)
	(f)	(i)	132 to 132.2	1	C opportunity
		(ii)	29.6 to 29.75	2	FT their f(i) in $\cos\left(\frac{f(i)}{2}\right)$ FT M1 for $50 \times \cos\left(their\frac{132}{2}\right)$ oe
					C opportunity
		(g)	70.2 to 70.3	1	FT 100 – <i>their</i> (f(ii))
4			13.7 or 13.74 to 13.75	2	M1 for $\cos\left(\frac{their87.05}{2}\right) \times 50$ implied
					by 36.2 to 36.3
					C opportunity

Page 5	e 5 Mark Scheme		Paper
	Cambridge IGCSE – October/November 2016	0607	61

	Question		on Answer		Part Marks
Communication: Seen in one of the following questions		1			
3	(f)	(i)	seen in 3(e) For line on graph (sketch) at V = 300000		
3	(f)	(ii)	For working shown i.e. extra stage like division by 2 or cos <i>their</i> angle		
4			seen in 3(e) For line on graph (sketch) at $V = 100000$ or $x = 87.0[5]$		