

**CAMBRIDGE INTERNATIONAL EXAMINATIONS**

Cambridge International General Certificate of Secondary Education

**MARK SCHEME for the October/November 2015 series**

**0607 CAMBRIDGE INTERNATIONAL MATHEMATICS**

**0607/61**

Paper 6 (Extended), maximum raw mark 40

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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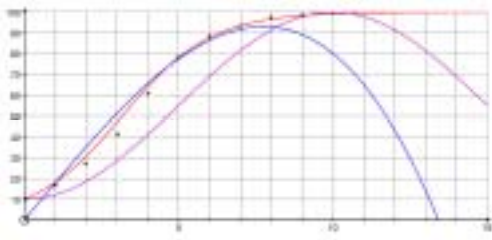
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**Abbreviations**

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

<b>A INVESTIGATION</b>		<b>SUMS OF TWO SQUARES</b>													
<b>Question</b>	<b>Answer</b>	<b>Mark</b>	<b>Part Marks</b>												
<b>1 (a)</b>	13 17	<b>1</b>													
<b>(b)</b>	$13 = 2^2 + 3^2$ $17 = 1^2 + 4^2$	<b>1</b>													
<b>(c)</b>	[101 =] $1^2 + 10^2$	<b>1</b>													
<b>2 (a)</b>	$49 + 576 = 625$ oe	<b>2</b>	<b>B1</b> for two correct squares												
<b>(b)</b>	<table border="1"> <tr> <td></td> <td></td> <td>41</td> </tr> <tr> <td></td> <td></td> <td>61</td> </tr> <tr> <td></td> <td>84</td> <td>85</td> </tr> <tr> <td>15</td> <td>112</td> <td></td> </tr> </table>			41			61		84	85	15	112		<b>3</b>	<b>B1</b> for each column  In third column <b>FT</b> <i>their</i> 84 either by pattern (+1) or by Pythagoras (correct to at least 1 dp)
		41													
		61													
	84	85													
15	112														
<b>(c)</b>	equal sum oe	<b>1</b>	<b>C</b> opportunity												
<b>(d) (i)</b>	29, 420	<b>1</b>	<b>C</b> opportunity												
<b>(ii)</b>	5100, 5101	<b>1</b>	<b>C</b> opportunity												
<b>3 (a)</b>	Each bracket correctly squared $4xy = 4mn$	<b>1</b> <b>1</b>													
<b>(b)</b>	$13^2 + 4^2 = 11^2 + 8^2$ $8^2 + 1^2 = 4^2 + 7^2$ $13^2 + 1^2 = 11^2 + 7^2$	<b>4</b>	<b>B2</b> for one correct statement  <b>B1</b> for each further correct statement  If 0 scored then <b>B1</b> for one solution												
<b>(c)</b>	[ $9^2 +$ ] $13^2$ [= $5^2 +$ ] $15^2$	<b>2</b>	<b>M1</b> for $x = 7, y = 2$ soi  <b>C</b> opportunity												
Communication seen in one of <b>2(c)</b> , <b>2(d)(i)</b> , <b>2(d)(ii)</b> or <b>3(c)</b>		<b>1</b>													

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B MODELLING		POPULATION GROWTH	
Question	Answer	Mark	Part Marks
1 (a)	Any correct statement implying why it is correct to do so	1	
(b)	Any correct statement about size or change of rate	1	
2 (a) (i)	$a + b = 18$ oe	1	
(ii)	$125a + 5b = 78$ oe	1	
(b)	$y = -0.1x^3 + 18.1x$	2FT	<b>B1FT</b> for $[a =] -0.1$ <b>B1FT</b> for $[b =] 18.1$ If 0 scored <b>B1FT</b> for two inaccurate answers <b>C</b> opportunity
3 (a) (i)	$a + b = 10$ oe	1	
(ii)	$a - b = 100$ oe	1	
(b)	$y = 55 - 45 \cos(18x)^\circ$	2FT	<b>B1FT</b> for $[a =] 55$ <b>B1FT</b> for $[b =] -45$  <b>C</b> opportunity
4 (a)	$[k =] 9$ nfw	2	<b>M1</b> for $\frac{100}{1+k} = 10$
(b)	Accurate oe dependent on $k$	1FT	<b>FT</b> their $k$
5 (a)		4FT	<b>B1FT</b> for each correct shape <b>B1FT</b> for all 3 y-intercepts correct  <b>C</b> opportunity
(b)	Accurate oe  Levels out after 10 years oe	2	<b>B1</b> for each
Communication seen in one of 2(b), 3(b) or 5(a)		1	