## **CAMBRIDGE INTERNATIONAL EXAMINATIONS**

**Cambridge International General Certificate of Secondary Education** 

## MARK SCHEME for the October/November 2015 series

## 0580 MATHEMATICS

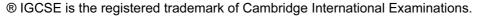
**0580/11** Paper 1, maximum raw mark 56

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**

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	0.524 < 5.0204 < 5.024 < 5.204	1	
2	[+]17	1	
3	$r^4$	1	
4 (a)	70	1	
(b)	[0].375 cao final answer	1	
5 (a)	18.88 cao final answer	1	
(b)	1.3	1	
6	$\begin{pmatrix} 13 \\ 9 \end{pmatrix}$	2	<b>B1</b> for $\begin{pmatrix} 12 \\ -6 \end{pmatrix}$ seen or <b>B1</b> for $\begin{pmatrix} 13 \\ k \end{pmatrix}$ or $\begin{pmatrix} j \\ -9 \end{pmatrix}$ as answer
7	Triangle (3, -2), (4, -2), (4, -1)	2	<b>B1</b> for movement 2 right or 3 down
8	628	2	<b>M1</b> for $\frac{785}{1+4} [\times 4]$
9	7 nfww	2	M1 for $7.5 \times 8$ or for $(7+8+8+y+6+9+10+5) \div 8 = 7.5$ or better oe
10	$\frac{\sqrt{4}\times30}{9-3}$	M1	Allow one error and 2 for $\sqrt{4}$ and 6 for $9-3$
	10 nfww	A1	

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11		$\frac{2}{5} \times \frac{4}{3}$	M1	$\frac{2\times 4}{5\times 3}$
		$=\frac{8}{15}$ or equivalent fraction	<b>A1</b>	
12		14 nfww	3	M2 for $(0.8 \times 6 + 2.2 \times 0.8)$ oe $\div$ 0.5 oe or M1 for $0.8 \times 6 + 2.2 \times 0.8$ oe  If zero scored, SC1 for <i>their</i> attempt at area $\div$ 0.5 and SC1 for any non-integer answer for <i>their</i> value $\div$ 0.5 rounded up
13	(a)	84	1	
	<b>(b)</b>	28	1	
	(c)	Alternate	1	
14		156	3	M2 for $180 - \frac{360}{15}$ or $\frac{180 \times (15 - 2)}{15}$ or $\frac{90 \times (2 \times 15 - 4)}{15}$ or M1 for $\frac{360}{15}$ or $180 \times (15 - 2)$ oe
15	(a)	[0].21 oe	2	<b>M1</b> for 1 – ([0].15 + [0].22 + [0].18 + [0].24) or 100 – (15 + 22 + 18 + 24)
	<b>(b)</b>	[0].37 oe	1	
16	(a)	90	1	
	(b)	8.29 or 8.289 to 8.29	2	M1 for $\frac{OP}{11} = \tan 37^{\circ}$ oe
17	(a)	Negative	1	
	(b)	Single ruled line of best fit	1	
	(c)	4000 to 5100	1	FT a single ruled line of negative gradient

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18			31.4 or 31.36 to 31.37	3	<b>M2</b> for $\left[\frac{2}{2} \times \right] 6.1 \times \pi + 2 \times 6.1$ oe or <b>B2</b> for 19.16 to 19.17 or 19.2 or <b>M1</b> for $6.1 \times \pi$ or for $12.2 \times \pi$
19	(a)		9.2	2	<b>M1</b> for $4 \times 2.6 + 3 \times (-0.4)$ or better
	(b)		3.4	2	M1 for one correct step in a 2-step method
20	(a)		27	1	
	(b)	(i)	2	1	
		(ii)	Ruled line from 14 55 to 15 40	2	<b>B1</b> for $\frac{3}{4}$ or 0.75 or 45 [min] or 15 40 or 3:40
			13 40		
21	(a)		348.6[0] cao final answer	1	
21	(a) (b)			1 3	<b>M2</b> for $750 \times 1.024^3$ oe or <b>M1</b> for $750 \times 1.024 \times 1.024$ oe
21			348.6[0] cao final answer		
21	(b)	(i)	348.6[0] cao final answer		or <b>M1</b> for 750 × 1.024 × 1.024 oe  If zero scored, <b>SC2</b> for answer of 55.31 or 55. 30[],
	(b)	(i) (ii)	348.6[0] cao final answer 805.31	3	or <b>M1</b> for 750 × 1.024 × 1.024 oe  If zero scored, <b>SC2</b> for answer of 55.31 or 55. 30[],