

**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

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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	<b>M1</b> for $7.5 \times 8$ or for $(7 + 8 + 8 + y + 6 + 9 + 10 + 5) \div 8 = 7.5$ or better oe
10	$\frac{\sqrt{4} \times 30}{9-3}$  10 nfww	<b>M1</b>  <b>A1</b>	Allow one error and 2 for $\sqrt{4}$ and 6 for $9-3$

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11	$\frac{2}{5} \times \frac{4}{3}$  $= \frac{8}{15}$ or equivalent fraction	M1  A1	$\frac{2 \times 4}{5 \times 3}$
12	14 nfw	3	M2 for $(0.8 \times 6 + 2.2 \times 0.8) \text{ oe } \div 0.5 \text{ oe}$ or M1 for $0.8 \times 6 + 2.2 \times 0.8 \text{ oe}$  If zero scored, SC1 for <i>their</i> attempt at $\text{area} \div 0.5$ and SC1 for any non-integer answer for <i>their</i> value $\div 0.5$ rounded up
13 (a)	84	1	
(b)	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 $180 \times (15 - 2) \text{ oe}$
15 (a)	[0].21 oe	2	M1 for $1 - ([0].15 + [0].22 + [0].18 + [0].24)$ or $100 - (15 + 22 + 18 + 24)$
(b)	[0].37 oe	1	
16 (a)	90	1	
(b)	8.29 or 8.289 to 8.29	2	M1 for $\frac{OP}{11} = \tan 37^\circ \text{ oe}$
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	<b>M1</b> 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
21 (a)	348.6[0] cao final answer	1	
(b)	805.31	3	<b>M2</b> for $750 \times 1.024^3$ oe or <b>M1</b> for $750 \times 1.024 \times 1.024$ oe  If zero scored, <b>SC2</b> for answer of 55.31 or 55.30[...], i.e. total interest
22 (a) (i)	21	1	
(ii)	48	1	
(b)	$5n - 3$ oe final answer	2	<b>B1</b> for $5n + a$ or $bn - 3$ ( $b \neq 0$ )