



**Cambridge International Examinations**  
Cambridge International General Certificate of Secondary Education

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**MATHEMATICS**

**0580/12**

Paper 1 Core

**May/June 2016**

MARK SCHEME

Maximum Mark: 56

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**Published**

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This document consists of **4** printed pages.

<b>Page 2</b>	<b>Mark Scheme</b>	<b>Syllabus</b>	<b>Paper</b>
	<b>Cambridge IGCSE – May/June 2016</b>	<b>0580</b>	<b>12</b>

### 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
<b>1</b>	$0.008 < 0.2 < 0.304 < 0.57$	<b>1</b>	
<b>2</b>	5.89 or 5.885 to 5.886	<b>1</b>	
<b>3</b>	3.590 cao	<b>1</b>	
<b>4</b>	Parallelogram	<b>1</b>	
<b>5</b>	284.2[0] cao	<b>1</b>	
<b>6</b>	36	<b>1</b>	
<b>7 (a)</b>	5 <sup>f</sup> final answer	<b>1</b>	
<b>(b)</b>	g <sup>8</sup> final answer	<b>1</b>	
<b>8</b>	24	<b>2</b>	<b>M1</b> for $6 \div 45$ or $180 \div 45$
<b>9</b>	$7n - 3$ oe	<b>2</b>	<b>M1</b> for $7n + a$ or $bn - 3$ ( $b \neq 0$ )
<b>10</b>	15	<b>2</b>	<b>M1</b> for $20 \div 12$ or $12 \div 9$ or $9 \div 12$ or $12 \div 20$
<b>11 (a)</b>	$2.6 \times 10^6$	<b>1</b>	
<b>(b)</b>	[0].0058	<b>1</b>	
<b>12</b>	$\frac{1}{4}$	<b>1</b>	
	[0].3	<b>1</b>	
	0.08	<b>1</b>	
<b>13 (a)</b>	Arrow 2 cm from 0	<b>1</b>	
<b>(b) (i)</b>	$\frac{8}{20}$ oe	<b>1</b>	
<b>(ii)</b>	$\frac{12}{20}$ oe	<b>1FT</b>	<b>FT 1</b> – <i>their</i> (b)(i) provided <i>their</i> (b)(i) < 1

<b>Page 3</b>	<b>Mark Scheme</b>	<b>Syllabus</b>	<b>Paper</b>
	<b>Cambridge IGCSE – May/June 2016</b>	<b>0580</b>	<b>12</b>

Question	Answer	Mark	Part marks
<b>14 (a)</b>	44	<b>1</b>	
<b>(b)</b>	180 to 184	<b>2</b>	<b>M1</b> for £50 = \$90 to \$92 oe soi
<b>15 (a) (i)</b>	$\begin{pmatrix} 12 \\ -6 \end{pmatrix}$	<b>1</b>	
<b>(ii)</b>	$\begin{pmatrix} 7 \\ -2 \end{pmatrix}$	<b>1</b>	
<b>(b)</b>	A in correct position	<b>1</b>	
<b>16 (a)</b>	(0, -3)	<b>1</b>	
<b>(b)</b>	4	<b>1</b>	
<b>(c)</b>	$y = 4x$ [+0]	<b>1FT</b>	<b>FT</b> $y = \textit{their} (b)x$ for numerical gradient only
<b>17</b>	45	<b>3</b>	<b>M2</b> for $360 \div (180 - 172)$ or <b>M1</b> for $180 - 172$ or $\frac{180(n-2)}{n} = 172$ oe
<b>18</b>	$\frac{21}{8} \times \frac{3}{7}$ oe $1\frac{1}{8}$ cao final answer	<b>M1</b> <b>A2</b>	Must be shown <b>A1</b> for $\frac{9}{8}$ oe e.g. $\frac{63}{56}$
<b>19</b>	Correctly eliminating one variable $x = 4$ $y = 0.5$ oe	<b>M1</b> <b>A1</b> <b>A1</b>	If zero scored <b>SC1</b> for 2 values satisfying one of the original equations or if no working shown, but 2 correct answers given
<b>20 (a)</b>	Bisector of angle B accurate with two pairs of correct arcs	<b>2</b>	<b>B1</b> for accurate line with no/wrong arcs or for correct arcs with no/wrong line
<b>(b)</b>	Ruled line parallel to AC at a distance of 3 cm to AC only inside the triangle	<b>1</b>	
<b>21 (a)</b>	Wed[nesday]	<b>1</b>	
<b>(b)</b>	4	<b>1</b>	
<b>(c)</b>	9	<b>1</b>	
<b>(d)</b>	-1 nfw	<b>1</b>	

<b>Page 4</b>	<b>Mark Scheme</b>	<b>Syllabus</b>	<b>Paper</b>
	<b>Cambridge IGCSE – May/June 2016</b>	<b>0580</b>	<b>12</b>

<b>22</b>	<b>(a)</b>	51	<b>2</b>	<b>M1</b> for $\frac{1}{2} \times (10 + 7) \times 6$ oe
	<b>(b)</b>	612 cm <sup>3</sup>	<b>1FT</b> <b>1</b>	<b>FT</b> $12 \times$ <i>their</i> (a)
<b>23</b>	<b>(a)</b>	16 10 or 4 10 pm	<b>1</b>	
	<b>(b)</b>	12	<b>2</b>	<b>M1</b> for $8 \div 40$ or better
	<b>(c)</b>	Line from (16 10, 8) to (16 55, 8)  Line from (16 55, 8) to (17 25, 0)	<b>1</b>  <b>1FT</b>	<b>FT</b> line from <i>their</i> (16 55, 8) to (( <i>their</i> 16 55 + 30 mins), 0)