



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

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**MATHEMATICS**

**0580/12**

Paper 1 (Core)

**October/November 2016**

MARK SCHEME

Maximum Mark: 56

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**Published**

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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
nfw	not from wrong working
soi	seen or implied

Question	Answer	Mark	Part marks
<b>1 (a)</b>	6	<b>1</b>	
<b>(b)</b>	2.5	<b>1</b>	
<b>2 (a)</b>	$\frac{9}{100}$	<b>1</b>	
<b>(b)</b>	[0].3	<b>1</b>	
<b>3</b>	< > =	<b>2</b>	<b>B1</b> for two correct
<b>4 (a)</b>	Correct arrow	<b>1</b>	
<b>(b)</b>	$\frac{2}{20}$ oe or 0.1 or 10%	<b>1</b>	
<b>5 (a)</b>	$6 + 12 \div (2 \times 3) = 8$	<b>1</b>	
<b>(b)</b>	0.625 oe	<b>1</b>	
<b>6 (a)</b>	$\begin{pmatrix} 15 \\ -21 \end{pmatrix}$	<b>1</b>	
<b>(b)</b>	$\begin{pmatrix} 3 \\ -13 \end{pmatrix}$	<b>1</b>	
<b>7 (a)</b>	5	<b>1</b>	
<b>(b)</b>	6	<b>1</b>	
<b>8 (a)</b>	24 or 48 or 72 or ...	<b>1</b>	
<b>(b)</b>	53 or 59	<b>1</b>	
<b>9 (a)</b>	15 000 cao	<b>1</b>	
<b>(b)</b>	$1.5 \times 10^4$	<b>1FT</b>	<b>FT their (a)</b>

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Question	Answer	Mark	Part marks
<b>10</b>	25	<b>2</b>	<b>B1</b> for 67 or 113 seen once in correct position or <b>M1</b> for $a + 42 = 67$ or $a + 42 + 113 = 180$ or better
<b>11</b>	21	<b>2</b>	<b>M1</b> for $k - 8 = 13$ or $6k - 48 = 78$ or better
<b>12</b>	58	<b>2</b>	<b>M1</b> for $\frac{(13+16) \times 4}{2}$ or $4 \times 13 + \frac{1}{2} \times 4 \times 3$ oe
<b>13</b>	7.42 or 7.418 to 7.419	<b>2</b>	<b>M1</b> for $\sin [32 = ] \frac{x}{14}$ or better
<b>14</b>	262	<b>3</b>	<b>M2</b> for $9 \times 6 \times 5 - 2 \times 2 \times 2$ oe or <b>M1</b> for $9 \times 6 \times 5$ or $2 \times 2 \times 2$ oe
<b>15 (a)</b>	0.98 oe	<b>1</b>	
<b>(b)</b>	50 cao	<b>2</b>	<b>M1</b> for $2500 \times 0.02$ If zero scored, <b>SC1</b> for answer of 2450
<b>16 (a)</b>	(7 , 1)	<b>1</b>	
<b>(b)</b>	-1.25 or $-\frac{5}{4}$ or $-1\frac{1}{4}$	<b>2</b>	<b>M1</b> for rise/run
<b>17 (a)</b>	<i>B</i> and <i>D</i>	<b>1</b>	
<b>(b)</b>	5.6	<b>2</b>	<b>M1</b> for $\frac{h}{4.2} = \frac{12.8}{9.6}$ oe or correct scale factor
<b>18 (a)</b>	(9, 14) identified	<b>1</b>	
<b>(b)</b>	Positive	<b>1</b>	
<b>(c)</b>	Ruled line of best fit	<b>1</b>	
<b>(d)</b>	Speaking test score	<b>1FT</b>	<b>Strict FT</b> their straight line of best fit
<b>19 (a)</b>	32	<b>1</b>	
<b>(b)</b>	150	<b>3</b>	<b>M2</b> for $180 - \frac{360}{12}$ or $\frac{180 \times (12 - 2)}{12}$ or $\frac{(2 \times 12 - 4) \times 90}{12}$ or <b>M1</b> for $\frac{360}{12}$ or $180 \times (12 - 2)$ or $(2 \times 12 - 4) \times 90$ soi

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<b>Question</b>	<b>Answer</b>	<b>Mark</b>	<b>Part marks</b>
<b>20</b>	Common denominator 24  Two correct from $\frac{18}{24}$ , $\frac{16}{24}$ and $\frac{3}{24}$ oe  $1\frac{7}{24}$ cao	<b>B1</b>  <b>M1</b>  <b>A2</b>	accept $k \times 24$  accept $\frac{18k}{24k}$ , $\frac{16k}{24k}$ and $\frac{3k}{24k}$  <b>A1</b> for $\frac{31}{24}$ or $\frac{31k}{24k}$ or $1\frac{7k}{24k}$
<b>21 (a)</b>	$9p$ final answer	<b>1</b>	
<b>(b)</b>	$4q - 12$ final answer	<b>1</b>	
<b>(c)</b>	$5t(2 + 3t)$ final answer	<b>2</b>	<b>M1</b> for $t(10 + 15t)$ or $5(2t + 3t^2)$
<b>(d)</b>	$[x = ] 3$ , $[y = ] -2$ with supporting working	<b>2</b>	<b>B1</b> for one correct with working  If zero scored, <b>SC1</b> for 2 values satisfying one of the original equations or <b>SC1</b> if no working shown, but 2 correct answers given