



**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
nfww	not from wrong working
soi	seen or implied

<b>Question</b>	<b>Answer</b>	<b>Mark</b>	<b>Part marks</b>
<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
10	25	2	<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
11	21	2	<b>M1</b> for $k - 8 = 13$ or $6k - 48 = 78$ or better
12	58	2	<b>M1</b> for $\frac{(13+16) \times 4}{2}$ or $4 \times 13 + \frac{1}{2} \times 4 \times 3$ oe
13	7.42 or 7.418 to 7.419	2	<b>M1</b> for $\sin [32 = ] \frac{x}{14}$ or better
14	262	3	<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
15 (a)	0.98 oe	1	
(b)	50 cao	2	<b>M1</b> for $2500 \times 0.02$ If zero scored, <b>SC1</b> for answer of 2450
16 (a)	(7, 1)	1	
(b)	-1.25 or $-\frac{5}{4}$ or $-1\frac{1}{4}$	2	<b>M1</b> for rise/run
17 (a)	B and D	1	
(b)	5.6	2	<b>M1</b> for $\frac{h}{4.2} = \frac{12.8}{9.6}$ oe or correct scale factor
18 (a)	(9, 14) identified	1	
(b)	Positive	1	
(c)	Ruled line of best fit	1	
(d)	Speaking test score	1FT	<b>Strict FT</b> their straight line of best fit
19 (a)	32	1	
(b)	150	3	<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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Question	Answer	Mark	Part marks
20	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