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**MATHEMATICS**

**0580/11**

Paper 1 Core

**May/June 2016**

**MARK SCHEME**

Maximum Mark: 56

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**Published**

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.

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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	8(h) 52 (min)	1	
2	3.75 or $3\frac{3}{4}$	1	
3	[0].72 oe	1	
4	[0].00127	1	
5	60	1	
6	157 900 cao	2	<b>B1</b> for 158 000 or 157 860 or 157 862 to 157 863  If zero scored, <b>SC1</b> for <i>their</i> answer to more than 4 figs correctly rounded to 4 sf
7 (a)	Acute	1	
(b)	Pentagon	1	
8 (a)	$\begin{pmatrix} -6 \\ 4 \end{pmatrix}$	1	
(b)	$\begin{pmatrix} 10 \\ -40 \end{pmatrix}$	1	
9 (a)	3	1	
(b)	All three correct lines of symmetry drawn	1	
10	393	2	<b>B1</b> for 393.1 to 393.2 or <b>M1</b> for $2000 \div 5.087$
11	144	2	<b>M1</b> for finding a correct product of prime factors or correctly listing a minimum of 3 multiples of 36 <b>and</b> 48 or for answer $2^4 \times 3^2$ oe or $144k$
12	11	2	<b>M1</b> for $-2 \times -7 - 3$ soi

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Question	Answer	Mark	Part marks
13	$\frac{py}{q}$ final answer	2	<b>M1</b> for one correct step
14	[a =] 70 [b =] 40	2	<b>B1</b> for each
15	21	2	<b>M1</b> for $\frac{15}{6}$ oe or $\frac{6}{15}$ oe or $\frac{8.4}{6}$ or $\frac{6}{8.4}$
16	$\frac{6}{7} \times \frac{3}{5}$ or $\frac{18}{21} \div \frac{35}{21}$ oe  $\frac{18}{35}$ cao	<b>M2</b>  <b>A1</b>	<b>B1</b> for $\frac{5}{3}$ oe  or <b>M1</b> for $\frac{6}{7} \times$ their $\frac{3}{5}$
17 (a)	19	1	
(b)	-2	1	
(c)	81	1	
18 (a)	Negative	1	
(b)	4	1	
(c) (i)	Ruled line of best fit	1	
(ii)	250 000 to 380 000	1	
19 (a)	Correct ruled angle bisector with all correct arcs	2	<b>M1</b> for accurate angle bisector with no / wrong arcs or for all correct arcs with no / wrong line
(b)	Correct ruled perpendicular bisector with two pairs of correct arcs	2	<b>M1</b> for accurate bisector with no / wrong arcs or for two pairs of correct intersecting arcs with no / wrong line
20	Correctly equating one set of coefficients Correct method to eliminate one variable [x =] -3 [y =] 7	<b>M1</b> <b>M1</b> <b>A1</b> <b>A1</b>	Dependent on first <b>M1</b> scored  If zero scored, <b>SC1</b> for 2 values satisfying one of the original equations or 2 correct answers given but no working shown

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Question	Answer	Mark	Part marks
21 (a)	(i) 0, 1	1	
	(ii) 2	2	<b>M1</b> for a correct rise ÷ run e.g. $4 \div 2$ or for right-angled triangle marked on graph with run = 1 and rise = 2 oe
	(iii) $[y =] 2x + 1$ final answer	2FT	<b>FT</b> <i>their</i> (a)(i) for $c$ and <i>their</i> (a)(ii) for $m$ <b>B1</b> for $y = 2x + c$ ( $c \neq 1$ ) or $y = mx + 1$ ( $m \neq 2$ or 0)
	(b) $y = 5x + c$ oe final answer	1	where $c \neq -3$
22 (a)	672	2	<b>M1</b> for $12 \times 8 \times 7$
	(b) 12.5	2	<b>M1</b> for $675 \div (6 \times 9)$
	(c) 540	3	<b>M2</b> for $(5 \times 9 \times 24) \div 2$ oe or <b>M1</b> for $(5 \times 9) \div 2$ or 22.5 seen