



Cambridge International Examinations
Cambridge International General Certificate of Secondary Education

MATHEMATICS

0580/11

Paper 1 (Core)

October/November 2016

MARK SCHEME

Maximum Mark: 56

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
1	Thirty million[s]	1	
2	-7	1	
3	$\frac{1}{8}$ cao	1	
4 (a)	[0].0402	1	
(b)	[0].040	1	
5	Fully correct triangle with correct arcs	2	B1 for correct triangle without arcs or for correct position of arcs If zero scored, SC1 for fully correct reversed triangle with arcs ie $AB = 6$ cm and $AC = 7$ cm or for triangle with only one of AB or AC correct length with suitable arcs
6	$\sqrt{0.33}$, 58%, $\frac{18}{31}$, $\frac{7}{12}$, 0.59	2	B1 for 4 in correct order or M1 for 3 of the following or better 0.583..., 0.574..., 0.58, 0.5806.. or 58.5%, 57.4%, 58.06%, 59%
7	$\begin{pmatrix} 12 \\ -16 \end{pmatrix}$	2	B1 for one correct component or for $\begin{pmatrix} 10 \\ -12 \end{pmatrix}$ seen

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8	$\frac{8}{12}$ and $\frac{3}{12}$ oe	M1	Correct fractions with common denominator
	$\frac{5}{12}$ cao	A1	
9	50.3 or 50.26 to 50.272	2	M1 for $2 \times \pi \times 8$ oe
10	216	2	M1 for $48 \div 2 [\times 9]$
11 (a)	E	1	
(b)	0 or zero	1	
12 (a)	Positive	1	
(b)	Zero oe	1	
13 (a)	8	1	M1 for ordered list of at least the first 6 or last 6 values provided any following work is an attempt at the median
(b)	6	2	
14 (a)	72	1	
(b)	6	1	
(c)	17	1	
15	Correctly eliminating one variable [x =] -1 and [y =] 5	M1 A1 A1	If zero scored, SC1 for 2 values that satisfy one of the original equations or SC1 if no working shown, but 2 correct answers given

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16	(a)	Accurate arc, centre B , radius 5cm meeting both BA and BC	1	B1 for accurate line from B to at least AC or M1 for correct arcs	
	(b)	Accurate bisector through angle B with 2 pairs of correct arcs and reaching to at least AC	2		
	(c)	Correct region identified	1		
					
17		24.9 or 24.925 or 24.9[24...]	3	M2 for $[x =] \frac{15}{\sin 37}$ or $[x =] \frac{15}{\cos 53}$ or M1 for $\sin [37 =] \frac{15}{x}$ or $x \sin 37 = 15$ oe	
18	(a)	$6n + 1$ oe final answer	2	B1 for $6n + c$ or for $kn + 1, (k \neq 0)$	
	(b)	$(n + 2)^2$ final answer	2	M1 for any quadratic expression or reaching second difference of 2	
19	(a)	54	1	Independent mark	
	(b)	61	1		
		Angle[s] [in a] triangle [add to] 180	1		
	(c)	(i)	48		1
		(ii)	42		1

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20	(a) (1, 4) (b) Point plotted at (5, -2) (c) Isosceles (d) $\begin{pmatrix} -4 \\ -6 \end{pmatrix}$ (e) (-5, 3)	1 1 1FT 1 1	Strict FT of <i>their</i> (b)
21	(a) 2 (b) $[x =] \sqrt{\frac{y+2}{4}}$ or $\sqrt{(y+2)/4}$ or $\frac{\sqrt{y+2}}{2}$ oe final answer	2 3	M1 for one correct step e.g. $4x = 11 - 3$ or $x + \frac{3}{4} = \frac{11}{4}$ or better M1 for one correct step e.g. $y + 2 = 4x^2$ or $\frac{y}{4} = x^2 - \frac{2}{4}$ M1 for a further correct step e.g. $\frac{y+2}{4} = x^2$ or $\frac{y}{4} + \frac{2}{4} = x^2$