

Cambridge Assessment International Education

Cambridge International General Certificate of Secondary Education

MATHEMATICS
Paper 1 (Core)
MARK SCHEME
Maximum Mark: 56

Published

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[Turn over

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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	Marks	Partial marks
1	101	1	
2	9944	1	
3	2	1	
4	88	2	M1 for $\frac{68+81+74+89+x}{5} = 80$ oe or B1 for 400
5()	10.0		or B1 for 400
5(a)	18.8 cao	1	
5(b)	19 cao	1	
6	1.5 oe	2	B1 for 2.25 oe
7	3x (4x + 5y - 3) final answer	2	B1 for $3(4x^2 + 5xy - 3x)$ or $x(12x + 15y - 9)$ allow in working or correct answer spoiled
			If zero scored, SC1 for $3x(4x + 5y - 3)$ with only 2 correct elements in the brackets, allow in working
8	14.25 14.35	2	B1 for each correct or both correct but reversed
9	63.6 or 63.61 to 63.63	2	M1 for $\pi \times 4.5^2$
10(a)	(-2, 3)	1	
10(b)	Correct rhombus with 4th point at (2,2)	1	
11(a)	$\frac{5}{9}$ cao	1	
11(b)	[0].09 then 9 [%]	2	B1 for each

Question	Answer		Marks	Partial marks
12	<u>5</u> 3	$\frac{2}{3} + \frac{4}{15}$	B1	Allow $\frac{5k}{3k}$
	$\frac{25}{15}$ [and $\frac{11}{15}$]	$\frac{10}{15}$ [and $\frac{4}{15}$]	M1	Correct method to find common denominator e.g. $\frac{75}{45}$ and $\frac{33}{45}$
				Follow through <i>their</i> $\frac{5}{3}$ for the M1 mark
	$\frac{14}{15}$ cao	$\frac{14}{15}$ cao	A1	
13(a)	343		1	
13(b)	-11		1	
13(c)	343		1	
14(a)	$\begin{pmatrix} 2 \\ 7 \end{pmatrix}$		1	
14(b)	$\begin{pmatrix} 2 \\ 5 \end{pmatrix}$		1	
14(c)	$\binom{8}{20}$		1	
15	54		3	M2 for $\frac{180 \times (5-2)}{5}$ or $180 - \frac{360}{5}$
				or M1 for $180 \times (5-2)$ or $\frac{360}{5}$
16	16.1 or 16.12 to 16.13		3	M2 for $\sqrt{(18^2 - 8^2)}$ or better
				or M1 for $18^2 = []^2 + 8^2$ or better
17(a)	m^{10} final answer		1	
17(b)	$20x^5y^2$ final answer		2	B1 for 2 out of 3 elements correct in final answer or correct answer spoiled

Question	Answer	Marks	Partial marks
18	Correct method to eliminate one variable	M1	
	[x=]-2	A1	
	[y=] 3	A1	If zero scored, SC1 for both correct but no or wrong working or SC1 for 2 values satisfying one of the original equations
19(a)(i)	99° 63°	3	B1 for each
	36°		or M1 for 162 ÷ 18 or 360 ÷ 40 or better
			If zero scored, SC1 for 3 angles that add to 198
19(a)(ii)	Correct labelled pie chart	1FT	FT their table if their angles add to 198
19(b)	$\frac{252}{360}$ or better fraction isw	1	
20(a)	71.48	2	M1 for 12.8 × 10.4 or 9.2 × 6.7
			or for an area of a suitable rectangle from shaded area
20(b)	132	3	M2 for $2 \times (8 \times 2 + 2 \times 5 + 8 \times 5)$ oe
			or M1 for at least two of 8×2 , 8×5 and 2×5
21(a)(i)	Correct ruled bisector with two pairs of correct arcs	2	B1 for correct ruled bisector missing/wrong arcs or 2 pairs of correct arcs
21(a)(ii)	Correct ruled perpendicular bisector with two pairs of correct arcs	2	B1 for correct ruled bisector missing/wrong arcs or 2 pairs of correct arcs
21(b)	Correct region shaded	1	Dep. on at least B1 in (a)(i) and B1 in (a)(ii)