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MATHEMATICS

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Paper 1 (Core)

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MARK SCHEME

Maximum Mark:56

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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	Marks	Part marks
1	70 020 cao	1	
2	[0].008	1	
3	2	1	
4	x^{10}	1	
5	Congruent	1	
6	31 or 37	1	
7(a)	23.46 cao	1	
7(b)	20 cao	1	
8	$4n(3n - m)$ final answer	2	B1 for $4(3n^2 - mn)$ or $n(12n - 4m)$ or $2n(6n - 2m)$ or $2(6n^2 - 2mn)$
9	6	2	B1 for answer 2 or 3 or 2×3 or M1 for prime factors of 126 and 150 seen
10(a)	Chicago	1	
10(b)	-3	1	
11	$21y + xy$ or $y(21 + x)$ final answer	2	B1 for $14x + 21y$ or $-14x + xy$ or answer of $ky + xy$
12	3567.5	1	
	3572.5	1	SC1 for both correct but reversed
13	$\begin{pmatrix} -1 \\ -9 \end{pmatrix}$	2	B1 for $\begin{pmatrix} -6 \\ -8 \end{pmatrix}$ seen or answer $\begin{pmatrix} k \\ -9 \end{pmatrix}$ or $\begin{pmatrix} -1 \\ k \end{pmatrix}$
14	14.88	2	M1 for $5000 \div 336$ or B1 for 14.881 or 14.880[9...] or 14.9

Question	Answer	Marks	Part marks
15(a)	$\frac{21}{50}$ oe	1	
15(b)	315	1FT	FT <i>their</i> (a) $\times 750$ provided $0 < \text{their (a)} < 1$
16	$\frac{2}{9}$	2	B1 for $\frac{8}{36}$ or $\frac{4}{18}$
17	$\sqrt{\frac{A}{4\pi}}$ or $\frac{1}{2}\sqrt{\frac{A}{\pi}}$ oe	2	M1 for $r^2 = \frac{A}{4\pi}$ or $2r\sqrt{\pi} = \sqrt{A}$ or $4r^2 = \frac{A}{\pi}$ or $\pi r^2 = \frac{A}{4}$
18(a)	−5	1	
18(b)(i)	$3 \times (5 + 2) + 2 = 23$	1	
18(b)(ii)	$12 \div (4 + 2) = 2$	1	
19	$\frac{14(\text{or } 35)}{21} + \frac{15}{21}$	M1	accept $\frac{14k(\text{or } 35k)}{21k} + \frac{15k}{21k}$
	$2\frac{8}{21}$ cao	A2	or A1 for $\frac{50}{21}$ or $1\frac{8}{21}$ or $\frac{29}{21}$ or $1\frac{29}{21}$
20	Correctly eliminating one variable	M1	
	$[x =] 2$	A1	
	$[y =] -7$	A1	If zero scored, SC1 for 2 values satisfying one of the original equations SC1 for both correct but no working
21	Complete correct ruled net	3	B2 for 4 correct rectangles in correct places or B1 for 2 correct side rectangles in correct places
22(a)	Points plotted at (4.5, 33) and (6.5, 35)	1	
22(b)	Positive	1	
22(c)	Correct ruled line	1	
22(d)	33.5 to 37.5	1FT	FT from <i>their</i> line provided positive gradient

Question	Answer	Marks	Part marks
23(a)(i)	Correct ruled bisector of AB with 2 pairs of arcs	2	B1 for correct bisector with no or incorrect arcs or 2 pairs of correct arcs
23(a)(ii)	Complete circle, radius 3 cm, centre C	2	B1 for an arc of correct radius or a circle of incorrect radius
23(b)	Correct region shaded	1	dep on at least B1 in both parts
24(a)(i)	338 or 338.3 nfw or 338.2 to 338.26	3	M1 for 3×74 and M1 for $74 \times \pi \div 2$
24(a)(ii)	7630 nfw or 7626 to 7627	3	M1 for 74^2 and M1 for $\frac{\pi \times 37^2}{2}$
24(b)	38100 nfw or 38200 or 38150 or 38130 to 38140	1FT	FT their (a)(ii) $\times 5$