Mark Scheme (Results)
Updated October 2023

Summer 2023

Pearson Edexcel International GCSE
In Mathematics A (4MA1) Paper 1H

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Summer 2023
Question Paper Log Number P72790A
Publications Code 4MA1_1H_2306_MS

General Marking Guidance

- All candidates must receive the same treatment. Examiners must mark the first candidate in exactly the same way as they mark the last.
- Mark schemes should be applied positively. Candidates must be rewarded for what they have shown they can do rather than penalised for omissions.
- Examiners should mark according to the mark scheme not according to their perception of where the grade boundaries may lie.
- There is no ceiling on achievement. All marks on the mark scheme should be used appropriately.
- All the marks on the mark scheme are designed to be awarded. Examiners should always award full marks if deserved, i.e. if the answer matches the mark scheme. Examiners should also be prepared to award zero marks if the candidate's response is not worthy of credit according to the mark scheme.
- Where some judgement is required, mark schemes will provide the principles by which marks will be awarded and exemplification may be limited.
- When examiners are in doubt regarding the application of the mark scheme to a candidate's response, the team leader must be consulted.
- Crossed out work should be marked UNLESS the candidate has replaced it with an alternative response.
- **Types of mark**
    - M marks: method marks
    - A marks: accuracy marks
    - B marks: unconditional accuracy marks (independent of M marks)
- **Abbreviations**
    - cao – correct answer only
    - ft – follow through
    - isw – ignore subsequent working
    - SC – special case
    - oe – or equivalent (and appropriate)
    - dep – dependent

- indep – independent
- awrt – answer which rounds to
- eeoo – each error or omission

- **No working**

  If no working is shown, then correct answers normally score full marks.

  If no working is shown, then incorrect (even though nearly correct) answers score no marks.

- **With working**

  If there is a wrong answer indicated on the answer line always check the working in the body of the script (and on any diagrams) and award any marks appropriate from the mark scheme.

  If it is clear from the working that the "correct" answer has been obtained from incorrect working, award 0 marks.

  If a candidate misreads a number from the question. E.g. Uses 252 instead of 255; method marks may be awarded provided the question has not been simplified. Examiners should send any instance of a suspected misread to review. If there is a choice of methods shown, mark the method that leads to the answer on the answer line; where no answer is given on the answer line, award the lowest mark from the methods shown.

  If there is no answer on the answer line, then check the working for an obvious answer.

- **Parts of question**

  Unless allowed by the mark scheme, the marks allocated to one part of the question CANNOT be awarded to another,

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Apart from questions 8ab, 9, 11b, 15a, 19b, 20 the correct answer, unless clearly obtained by an incorrect method, should be taken to imply a correct method

Q	Working	Answer	Mark	Notes	
1	$12 \div (5 - 2)$ (= 4) **or** 2 : 5 = 8 : 20 **or** A = 8 **or** S = 20 **or** eg $\frac{5}{15}x - \frac{2}{15}x = 12$ **or** $x = 60$		3	M1 for method to find the value of one share **or** working with the ratio for Arjun or Simon **or** setting up an equation **or** for finding the total number of goals (= 60)	M2 for $\frac{8}{5-2} \times 12$ oe
	eg $8 \times$ "4" **or** $8 \times \frac{8}{2}$ **or** 8 + 12 + 12 **or** $8 \times \frac{20}{5}$ **or** 20 + 12 **or** "60" $\times \frac{8}{15}$			M1 for a complete method	
	Correct answer scores full marks (unless from obvious incorrect working)	32		A1 SCB1 for $\frac{8}{15} \times 12 (= 6.4)$	
					Total 3 marks

2	$15 \times 5 + 45 \times 6 + 75 \times 8 + 105 \times 9 + 135 \times 2$ **or** $75 + 270 + 600 + 945 + 270$ [lower bound products are: 0, 180, 480, 810, 240] [upper bound products are: 150, 360, 720, 1080, 300]		3	M2 for correct products using midpoints (allow one error or omission) with attempt to add (M1 for products using a consistent value within range and attempt to add **or** for at least 4 correct products without addition)	
	Correct answer scores full marks (unless from obvious incorrect working)	2160		A1 (an answer of 72 loses the final A mark but gains M2)	
					Total 3 marks

3	$0.7 \times 60 \times 22\ (= 924)$ oe **or** $(1 - 0.7) \times 60 \times 19\ (= 342)$ oe **OR** $0.7 \times 60 \times \left(22 - \frac{780}{60}\right) (= 378)$ oe **or** $(1 - 0.7) \times 60 \times \left(19 - \frac{780}{60}\right) (= 108)$ oe		4	M1	for finding income for the 22 dirhams notebooks **or** the 19 dirhams notebooks **OR** for finding the profit for the 22 dirhams notebooks **or** the 19 dirhams notebooks
	$0.7 \times 60 \times 22\ (= 924)$ oe **and** $(1 - 0.7) \times 60 \times 19\ (= 342)$ oe **OR** $0.7 \times 60 \times \left(22 - \frac{780}{60}\right) (= 378)$ oe **and** $(1 - 0.7) \times 60 \times \left(19 - \frac{780}{60}\right) (= 108)$ oe			M1	for finding income for the 22 dirhams notebooks **and** the 19 dirhams notebooks **OR** for finding the profit for the 22 dirhams notebooks **and** the 19 dirhams notebooks, 1266 **or** 486 implies M2
	eg $\frac{"924" + "342" - 780}{780} \times 100$ **or** $\frac{"924" + "342"}{780} \times 100 - 100$ **or** $\frac{"378" + "108"}{780} \times 100$ **or** $\frac{486}{780} \times 100$			M1	for a complete method to find percentage profit
	Correct answer scores full marks (unless from obvious incorrect working)	62.3		A1	awrt 62.3, allow 62 from correct working
					Total 4 marks

4 (a)	eg $\begin{pmatrix}6--7\\12-2\end{pmatrix}\left[=\begin{pmatrix}13\\10\end{pmatrix}\right]$ **or** $\begin{pmatrix}-7-6\\2-12\end{pmatrix}\left[=\begin{pmatrix}-13\\-10\end{pmatrix}\right]$		3	M1	with or without brackets, allow 13 right and 10 up **or** (13, 10) **or** 13 left and 10 down **or** (−13, −10) **or** for one of −5 + 10 (= 5) or −3 + 10 (= 7) or 9 – 13 (= −4)
				M1	for two of −5 + 10 (= 5) or −3 + 10 (= 7) or 9 – 13 (= −4)
	Correct answer scores full marks (unless from obvious incorrect working)	$d = 5$, $e = 7$, $f = -4$		A1	
(b)		Enlargement	3	B1	with no mention of any other transformation or words such as move, flip, shift
		Scale factor 3		B1	with no mention of a vector, angle of rotation or line of symmetry
		Centre (0, 2)		B1	
(c)		Correct shape with coordinates (0, 5), (1, 6), (3, 6), (1, 5)	2	B2	B1 for a correct shape with the correct orientation in the incorrect position **or** for 3 out of 4 vertices correct **or** for a correct rotation of 90° anticlockwise about (3, 5)
					Total 8 marks

5	$7.2^2 + 5.4^2$ (= 81)		4	M1	for correct first step using Pythagoras	M1 for reaching one step from the length of *AB* if using trig eg $(EAB =) \tan^{-1}\left(\frac{5.4}{7.2}\right) (= 36.8...)$ **and** $\sin("36.8...") = \frac{5.4}{AB}$
	$\sqrt{7.2^2 + 5.4^2}$ (= 9)			M1	for complete Pythagoras method to find length of *AB*/*DC* check the diagram for sight of 9, *DC* marked as 9 implies M2	M1 for complete method to find the length of *AB*/*DC* eg $\frac{5.4}{\sin("36.8...")} (= 9)$
	7.2 + 5.4 + 6 + "9" + 6 oe			M1	for a complete method to find the perimeter	
	Correct answer scores full marks (unless from obvious incorrect working)	33.6		A1	oe	
						Total 4 marks

6	(a)		$8c^{12}d^{21}$	2	B2	(B1 for 2 correct terms as part of a product)
	(b)		5	1	B1	
	(c)		$4a^2b(4b^2 + 5a)$	2	B2	B1 for any correct partial factorisation with at least 2 factors, **or** the correct common factor with no more than 1 error inside the bracket
	(d)(i)	$(x \pm 11)(x \pm 2)$		2	M1	for $(x \pm 11)(x \pm 2)$ **or** for $(x + a)(x + b)$ with $ab = -22$ or $a + b = 9$
		Correct answer scores full marks (unless from obvious incorrect working)	$(x + 11)(x - 2)$		A1	for correct factors
	(ii)		$-11, 2$	1	B1ft	ft dep on factorising in the form $(x + p)(x + q)$
						Total 8 marks

7		$x \leq 1$	4	B1	accept $x < 1$
		$y \geq -2$		B1	accept $y > -2$
	$y = 2x + c$ or $y = mx + 4$			M1	allow = or < or ≤ or > or ≥
	Correct answer scores full marks (unless from obvious incorrect working)	$y \leq 2x + 4$		A1	oe, allow $y < 2x + 4$ oe SCB2 for the correct inequalities with all inequality signs the wrong way round
					Total 4 marks

<table>
<tr><td>8 (a)</td><td>eg $2 \times 2 \times 75$
or $3 \times 5 \times 20$
or $2 \times 3 \times 50$
or $5^2 \times 12$
or
<table><tr><td>2</td><td>300</td></tr><tr><td>2</td><td>150</td></tr><tr><td></td><td>75</td></tr></table></td><td></td><td>2</td><td>M1</td><td>for 2 correct stages in prime factorisation with 0 incorrect stages
or at least 3 stages in prime factorisation with no more than 1 incorrect stage.
Each stage gives 2 factors – may be in a factor tree or a table or listed eg 2, 2, 75 (see LHS for examples of the amount of work needed for the award of this mark). Example of 3 stages with 1 incorrect stage:
$300 = 100 \times 30 = 2 \times 50 \times 5 \times 6$</td></tr>
<tr><td></td><td>Working required</td><td>$2 \times 2 \times 3 \times 5 \times 5$</td><td></td><td>A1</td><td>dep on M1, oe eg $2^2 \times 3 \times 5^2$</td></tr>
<tr><td></td><td>(b)</td><td>($5A$ =) $2 \times 2 \times 2 \times 3 \times 3 \times 5 \times 5$ oe (= 1800)
or
($5A$ =) $2^3 \times 3^2 \times 5^2$ (= 1800)
or
($7B$ =) $2 \times 2 \times 3 \times 3 \times 3 \times 5 \times 7$ oe (= 3780)
or
($7B$ =) $2^2 \times 3^3 \times 5 \times 7$ (= 3780)</td><td></td><td>2</td><td>M1</td><td>for method to find $5A$ or $7B$ as prime factors (may be seen in factor tree, table or Venn diagram) or as an integer

or for listing at least 3 multiples of each number eg 1800, 3600, 5400... and 3780, 7560, 11 340...

or for an answer of 1080 oe eg $2^3 \times 3^3 \times 5$</td></tr>
<tr><td></td><td>Working required</td><td>37 800</td><td></td><td>A1</td><td>dep on M1, oe eg $2^3 \times 3^3 \times 5^2 \times 7$</td></tr>
<tr><td></td><td></td><td></td><td></td><td></td><td>Total 4 marks</td></tr>
</table>

9	eg $21x + 9y = 24$ _ $2x + 9y = 14.5$ or $14x + 63y = 101.5$ _ $14x + 6y = 16$ **or** eg $7\times\left(\frac{14.5-9y}{2}\right)+3y=8$		3	M1	for a correct method to eliminate x or y: multiplication of one or both equation(s) with correct operation selected (allow one arithmetic error) (if + or – is not shown then assume it is the operation that at least 2 of the 3 terms have been calculated for) **or** correct rearrangement of one equation with substitution into second
				M1	(dep on previous M1 but not on a correct first value) correct method to find second unknown – this could be a correct substitution into one of the equations given or calculated or starting again with the same style of working as for the first method mark
	Working required	$x = 0.5$ **and** $y = 1.5$		A1	oe, dep on M1
					Total 3 marks

10	Correctly identifying 15 and 25		2	M1	could be clearly shown in list (condone 19 also being indicated)
	Correct answer scores full marks (unless from obvious incorrect working)	10		A1	
					Total 2 marks

11	(a)			2	M1	for at least 2 of $12x^2$, $2x$, -20
			$12x^2 + 2x - 20$		A1	
	(b)	$12x^2 + 2x - 20 = 4$ oe		4	M1	ft, for equating their dy/dx to 4
		$12x^2 + 2x - 24\ (= 0)$ **or** $6x^2 + x - 12\ (= 0)$			M1	(dep on M1) ft their dy/dx in the form $ax^2 + bx\ (+ c)$
		eg $(6x - 8)(2x + 3)\ (= 0)$ **or** $(3x - 4)(2x + 3)\ (= 0)$ **or** $x = \frac{-2 \pm \sqrt{(2)^2 - (4 \times 12 \times -24)}}{2 \times 12}$			M1	for solving their three-term quadratic equation using any correct method - if factorising, allow brackets which expanded give 2 out of 3 terms correct (if using formula or completing the square allow one sign error and some simplification – allow as far as eg $\frac{-2 \pm \sqrt{4 + 1152}}{24}$ oe)
		Working required	$\frac{4}{3}, -\frac{3}{2}$		A1	(dep on M2) oe, allow 1.33(3...) for $\frac{4}{3}$, both values – isw any attempt to find y coordinates
						Total 6 marks

12	(a)		28	1	B1	allow 27.5 − 28.5
	(b)		14	1	B1	cao
	(c)			2	M1	for a reading of 38 from vertical axis **or** 50 – (their reading from a height of 35)
		Correct answer scores full marks (unless from obvious incorrect working)	12		A1	cao
						Total 4 marks

13	eg (gradient =) $\frac{12--48}{-5-19}\left(=-2.5\right)$ oe		3	M1 for a method to find the gradient
	eg $12 = \text{“}-2.5\text{”} \times -5 + c$ oe $y - 12 = \text{“}-2.5\text{”}(x - -5)$ oe			M1 ft their gradient
	Correct answer scores full marks (unless from obvious incorrect working)	$y = -2.5x - 0.5$		A1 oe eg $y - 12 = -2.5(x + 5)$ **or** $2y + 5x + 1 = 0$
				Total 3 marks

14		$2(5g + 3)(5g - 3)$	3	B3 for $2(5g + 3)(5g - 3)$ B2 for $2(5g \pm 3)(5g \pm 3)$ oe eg $2(5g - 3)^2$ B1 for $2(25g^2 - 9)$ **or** $(10g + 6)(5g - 3)$ **or** $(5g + 3)(10g - 6)$ **or** $(5g + 3)(5g - 3)$
				Total 3 marks

15	(a)	$\sqrt{2} = 2^{\frac{1}{2}}$ or $8^3 = 2^9$ or $16^{\frac{3}{2}} = 2^6$		3	M1 for one of $\sqrt{2} = 2^{\frac{1}{2}}$ or $8^3 = 2^9$ or $16^{\frac{3}{2}} = 2^6$
					M1 for all of $\sqrt{2} = 2^{\frac{1}{2}}$ and $8^3 = 2^9$ and $16^{\frac{3}{2}} = 2^6$ **OR** $2^{\frac{1}{2}} \div 2^3$
		Working required	-2.5		A1 oe, dep on M1
	(b)	$0.04 \times 4.5 \times 10^{157}$ oe		3	M1
		$4 \times 10^{-2} \times 4.5 \times 10^{157}$ $(= 18 \times 10^{155})$ **or** 0.18×10^{157} oe			M1
		Correct answer scores full marks (unless from obvious incorrect working)	1.8×10^{156}		A1 SCB1 for $18 \times 10^{156} = 1.8 \times 10^{157}$ **or** $18 \times 10^{157} = 1.8 \times 10^{158}$
					Total 6 marks

16	(a)		6	1	B1
	(b)		36	1	B1
	(c)		15	1	B1
					Total 3 marks

17	(a)		2.5	1	B1	oe e.g. $2\frac{1}{2}, \frac{5}{2}$ Accept $x = 2.5$ oe and $x \neq 2.5$ oe Any response that contains 2.5 oe is also acceptable, **APART FROM** $x > 2.5$ oe or $x < 2.5$ oe or $x \geq 2.5$ oe or $x \leq 2.5$ oe
	(b)	(gh(x)=) $\frac{11}{2(x^2+4)-5}(=1)$		3	M1	
		$11 - 3 = 2x^2$ oe eg $x^2 = 4$ **or** $2x^2 - 8 = 0$ **or** $x^2 - 4 = 0$			M1	correct expansion and rearrangement with x term on one side and number terms the other side **or** all terms on one side in an equation
		Correct answer scores full marks (unless from obvious incorrect working)	2		A1	cao, an answer of ±2 gains M2 only If no other marks awarded, award SCB1 for answer of 2.2 oe
						Total 4 marks

18	140 – (23 + 18 + 14) (= 85) **and** state the area of the 2 given bars, eg 34 (1 cm) squares or 8.5 large squares or 850 small squares oe **OR** 23 ÷ 5 (= 4.6 oe) **or** 18 ÷ 10 (= 1.8 oe) **or** 14 ÷ 20 (= 0.7 oe)		4	M1
	Use of frequency density for the given bars eg "85" ÷ 34 = 2.5 [(1 cm) square = 2.5 people] or "85" ÷ 8.5 = 10 [1 large square = 10 people] or "85" ÷ 850 = 0.1 [1 small square = 0.1 people] or 10 small squares = 1 person **OR** 23 ÷ 5 (= 4.6 oe) **and** 18 ÷ 10 (= 1.8 oe) **and** 14 ÷ 20 (= 0.7 oe)			M1 **or** 2 correct values in the table **or** 2 or 3 correct bars
	Correct answer scores full marks (unless from obvious incorrect working)	$5 < t \leq 15$ has frequency 25 $15 < t \leq 30$ has frequency 60 Bars of 4.6, 1.8, 0.7 correctly drawn to scale		A2 (A1 for **4** of $5 < t \leq 15$ has frequency 25 $15 < t \leq 30$ has frequency 60 bar of 4.6, bar of 1.8, bar of 0.7)
				Total 4 marks

19	(a)		$-2\mathbf{a}+\mathbf{b}$	1	B1	oe
	(b)	eg $\overrightarrow{OP}=\mathbf{a}+y(-\mathbf{a}+6\mathbf{b})$ and $\overrightarrow{OP}=2\mathbf{a}+x("-2\mathbf{a}+\mathbf{b}")$ $\overrightarrow{AP}=-\mathbf{a}+y(-\mathbf{a}+6\mathbf{b})$ and $\overrightarrow{AP}=x("-2\mathbf{a}+\mathbf{b}")$ $\overrightarrow{AB}=x("-2\mathbf{a}+\mathbf{b}")+y(-\mathbf{a}+6\mathbf{b})$ and $\overrightarrow{AB}=-2\mathbf{a}+6\mathbf{b}$ $\overrightarrow{NP}=-\mathbf{b}+\mathbf{a}+y(-\mathbf{a}+6\mathbf{b})$ and $\overrightarrow{NP}=x("2\mathbf{a}-\mathbf{b}")$ $\overrightarrow{MP}=x(-\mathbf{a}+6\mathbf{b})$ and $\overrightarrow{MP}=\mathbf{a}+y("-2\mathbf{a}+\mathbf{b}")$		4	M2	ft from (a), for writing eg $\overrightarrow{OP}$ or $\overrightarrow{AP}$ or $\overrightarrow{AB}$ or $\overrightarrow{NP}$ or $\overrightarrow{MP}$ <u>or similar</u> in two different ways in terms of **a** and **b** (M1 for writing eg $\overrightarrow{OP}$ or $\overrightarrow{AP}$ or $\overrightarrow{AB}$ or $\overrightarrow{NP}$ or $\overrightarrow{MP}$ <u>or similar</u> in one way in terms of **a** and **b**) These may be written as eg $\overrightarrow{PO}$ in place of $\overrightarrow{OP}$
		eg $x=6y$ and $2-2x=1-y$ (from $\overrightarrow{OP}$) $x=6y$ and $-2x=-1-y$ (from $\overrightarrow{AP}$) $6=x+6y$ and $-2=-2x-y$ (from $\overrightarrow{AB}$) $2x=1-y$ and $-x=-1+6y$ (from $\overrightarrow{NP}$) $-x=1-2y$ and $6x=y$ (from $\overrightarrow{MP}$)			M1	dep M2 for writing a pair of equations using their variables $\overrightarrow{OP}$ leads to $x=\frac{6}{11}, y=\frac{1}{11}$ $\overrightarrow{AP}$ leads to $x=\frac{6}{11}, y=\frac{1}{11}$ $\overrightarrow{AB}$ leads to $x=\frac{6}{11}, y=\frac{10}{11}$ $\overrightarrow{NP}$ leads to $x=\frac{5}{11}, y=\frac{1}{11}$ $\overrightarrow{MP}$ leads to $x=\frac{1}{11}, y=\frac{6}{11}$
		Vector method required	6 : 5		A1	dep on M2, oe eg $\frac{6}{11}:\frac{5}{11}$
						Total 5 marks

20	$\frac{80}{2}(2a+79d)=470$ oe		6	M1	for substituting into the sum of arithmetic series formula
	$a + 74d = 14.5$ oe			M1	for substituting into the nth term of arithmetic sequence formula
	correct method to find the value of a or d eg $2a + 148d = 29$ $2a + 79d = 11.75$ _			M1	solve the correct equations simultaneously, eg make the coefficients of a or d the same and show the intention to subtract **or** rearrange one equation to make a or d the subject and substitute into the other equation
	correct values of $a = -4$ and $d = 0.25$ oe			A1	dep on M2
	$\frac{X}{2}(2\times"-4"+(X-1)"0.25")=171$ oe			M1	correctly substituting the found values of a and d into a correct equation, can be their values of a and d as long as clearly stated
	Working required	57		A1	dep on M2
					Total 6 marks

21	(a)	(10, 5)	1	B1	cao
	(b)	(2, 5)	1	B1	cao
					Total 2 marks

22	(radius of large circle =) $\frac{4}{\cos 54}$ **or** $\frac{4}{\sin 36}$ **or** $\frac{8\sin 54}{\sin 72}$ **or** $\sqrt{\frac{8^2}{2-2\cos 72}}$ (= 6.805...) **or** (height of 1 triangle within pentagon =) 4tan54 (=5.505...) oe		6	M1	for a complete method to find the radius of the large circle **or** the perpendicular height of one triangle within the pentagon
	(area of large circle =) $\pi \times (\text{"6.805..."})^2$ (= 145.489...) oe **or** (area of sector =) $\frac{72}{360} \times \pi \times (\text{"6.805..."})^2$ (= 29.097...) oe			M1	for a complete method to find the area of the large circle **or** the area of a sector of the large circle
	(area of pentagon =) 5 × ½ × 8 × "5.505..." (= 80tan54 = 110.11...) **or** 10 × ½ × 4 × "5.505..." (= 80tan54 = 110.11...) **or** 5 × ½ × "6.805..." × "6.805..." × sin72 (= 110.11...) oe **OR** (area of one triangle =) ½ × 8 × "5.505..." (= 22.022...) **or** ½ × "6.805..." × "6.805..." × sin72 (= 22.022...) **or** ½ × "6.805..." × 8 × sin54 (= 22.022...) oe			M1	for a complete method to find the area of the pentagon **OR** the area of one triangle eg *OED* or equivalent
	$\text{"145.489..."} - \text{"110.11..."} + \pi r^2 = \text{"110.11..."} - \pi r^2$ oe **or** $5 \times (\text{"29.097..."} - \text{"22.022..."}) + \pi r^2 = 5 \times \text{"22.022..."} - \pi r^2$ oe			M1	for a correct equation for the radius of the smaller circle
	$2\pi r^2 = 2 \times \text{"110.11..."} - \text{"145.489..."}$ (= 74.731...) oe			M1	for a correct rearranged equation with the area of the circle the subject or better
	Correct answer scores full marks (unless from obvious incorrect working)	3.45		A1	accept 3.43 – 3.45
					Total 6 marks

23	$(39 \div 3)^2 + 39^2$ **or** $1521 + 169$ $(= 1690)$		5	M1	for summing the area of the 2 squares – may be seen embedded in a calculation	
	$\sqrt{45^2 + (39 \div 2)^2}$ $(= 49.043...)$ **or** $\sqrt{15^2 + \left(\frac{39 \div 3}{2}\right)^2}$ $(= 16.347...)$ oe			M1	for finding the perpendicular slant height of either pyramid	M2 for eg $\sqrt{\left(\frac{39-13}{2}\right)^2 + (45-15)^2}$ $(= \sqrt{1069} = 32.695...)$
	$\frac{2}{3} \times$"49.043..." **or** $2 \times$"16.347..." $(= 32.695...)$ oe **OR** $\frac{1}{2} \times 13 \times$"16.347..." $(= 106.260...)$ **or** $4 \times \frac{1}{2} \times 13 \times$"16.347..." $(= 425.042...)$ **or** $\frac{1}{2} \times 39 \times$"49.043..." $(= 956.345...)$ **or** $4 \times \frac{1}{2} \times 39 \times$"49.043..." $(= 3825.381...)$			M1	for finding the perpendicular slant height of the frustum **OR** the area of 1 or 4 triangular faces for either pyramid	
	$(39 \div 3)^2 + 39^2 + 4 \times \frac{(39 \div 3) + 39}{2} \times$"32.695..." **OR** $(39 \div 3)^2 + 39^2$ + "3825.381..." – "425.042..."			M1	correct calculation for total surface area	
	Correct answer scores full marks (unless from obvious incorrect working)	5090		A1	accept 5090 – 5091	
						Total 5 marks

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