# Mark Scheme (Results)

## Summer 2015

Pearson Edexcel GCSE
In Mathematics A (1MA0)
Higher (Non-Calculator) Paper 1H

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**NOTES ON MARKING PRINCIPLES**

**1** All candidates must receive the same treatment. Examiners must mark the first candidate in exactly the same way as they mark the last.

**2** Mark schemes should be applied positively.

**3** 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. Note that in some cases a correct answer alone will not score marks unless supported by working; these situations are made clear in the mark scheme. Examiners should be prepared to award zero marks if the candidate's response is not worthy of credit according to the mark scheme.

**4** Where some judgement is required, mark schemes will provide the principles by which marks will be awarded and exemplification may be limited.

**5** Crossed out work should be marked UNLESS the candidate has replaced it with an alternative response.

**6** Mark schemes will award marks for the quality of written communication (QWC).
The strands are as follows:

i) *ensure that text is legible and that spelling, punctuation and grammar are accurate so that meaning is clear*
Comprehension and meaning is clear by using correct notation and labelling conventions.

ii*) select and use a form and style of writing appropriate to purpose and to complex subject matter*
Reasoning, explanation or argument is correct and appropriately structured to convey mathematical reasoning.

iii) *organise information clearly and coherently, using specialist vocabulary when appropriate*.
The mathematical methods and processes used are coherently and clearly organised and the appropriate mathematical vocabulary used.

**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If working is crossed out and still legible, then it should be given any appropriate marks, as long as it has not been replaced by alternative work.

If it is clear from the working that the "correct" answer has been obtained from incorrect working, award 0 marks. Send the response to review, and discuss each of these situations with your Team Leader.

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

Partial answers shown (usually indicated in the ms by brackets) can be awarded the method mark associated with it (implied).

Any case of suspected misread loses A (and B) marks on that part, but can gain the M marks; transcription errors may also gain some credit.  Send any such responses to review for the Team Leader to consider.

If there is a choice of methods shown, then no marks should be awarded, unless the answer on the answer line makes clear the method that has been used.

**8     Follow through marks**

Follow through marks which involve a single stage calculation can be awarded without working since you can check the answer yourself, but if ambiguous do not award.

Follow through marks which involve more than one stage of calculation can only be awarded on sight of the relevant working, even if it appears obvious that there is only one way you could get the answer given.

**9     Ignoring subsequent work**

It is appropriate to ignore subsequent work when the additional work does not change the answer in a way that is inappropriate for the question: e.g. incorrect cancelling of a fraction that would otherwise be correct

It is not appropriate to ignore subsequent work when the additional work essentially makes the answer incorrect e.g. algebra.

**10    Probability**

Probability answers must be given a fractions, percentages or decimals.  If a candidate gives a decimal equivalent to a probability, this should be written to at least 2 decimal places (unless tenths).

Incorrect notation should lose the accuracy marks, but be awarded any implied method marks.

If a probability answer is given on the answer line using both incorrect and correct notation, award the marks.

If a probability fraction is given then cancelled incorrectly, ignore the incorrectly cancelled answer.

**Linear equations**
Full marks can be gained if the solution alone is given on the answer line, or otherwise unambiguously indicated in working (without contradiction elsewhere). Where the correct solution only is shown substituted, but not identified as the solution, the accuracy mark is lost but any method marks can be awarded (embedded answers).

**12    Parts of questions**
Unless allowed by the mark scheme, the marks allocated to one part of the question CANNOT be awarded in another.

**13    Range of answers**
Unless otherwise stated, when an answer is given as a range (e.g 3.5 – 4.2) then this is inclusive of the end points (e.g 3.5, 4.2) and includes all numbers within the range (e.g 4, 4.1)

**14**    The detailed notes in the mark scheme, and in practice/training material for examiners, should be taken as precedents over the above notes.

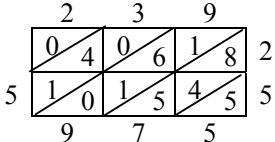| **Guidance on the use of codes within this mark scheme** |
| --- |
| M1 – method mark for appropriate method in the context of the question<br>A1 – accuracy mark<br>B1 – Working mark<br>C1 – communication mark<br>QWC – quality of written communication<br>oe – or equivalent<br>cao – correct answer only<br>ft – follow through<br>sc – special case<br>dep – dependent (on a previous mark or conclusion)<br>indep – independent<br>isw – ignore subsequent working |

| PAPER: 1MA0_1H | | | | |
|---|---|---|---|---|
| Question | Working | Answer | Mark | Notes |
| 1 (a) | | 15 \| 6 9<br>16 \| 4 5 7 7 8 9<br>17 \| 2 3 6 6 8 9<br>18 \| 0 2 3 8<br>19 \| 0 2<br>with key | 3 | B2 for a correct ordered stem and leaf diagram<br>(B1 for fully correct unordered or ordered with one error or omission)<br>B1 (indep) for key (units not required) |
| (b) | | 15 | 2 | M1 for a method to find "3" as a percentage of the total number of men, eg $\frac{"3"}{"20"} \times 100$ oe $\frac{"3" \times 5}{100}$ or ft from their diagram<br>A1 for 15 cao |
| 2 (a) | | 36 | 1 | B1 cao |
| (b) | | 2.5 oe | 2 | M1 for collecting the terms in $x$ or the number terms in an equation, eg. $5x - x + 4 = 14$ or<br>$5x = 14 - 4 + x$<br>A1 for 2.5 oe (accept $\frac{10}{4}$ ) |
| 3 | | Question | 2 | B1 for a question with a time frame for frequency of use<br>B1 for at least 3 correctly labelled response boxes (non-overlapping and exhaustive)<br>[Do not allow inequalities in response boxes] |

| Question | Working | Answer | Mark | Notes |
|---|---|---|---|---|
| *4 | 1195<br>4780 +<br>5975<br><br>(grid multiplication: 239 × 25)<br><br>2   3   9<br>0/4 0/6 1/8  2<br>1/0 1/5 4/5  5<br>9   7   5<br><br>5<br><br>|     | 200 | 30 | 9 |<br>| 20 | 4000 | 600 | 180 |<br>| 5 | 1000 | 150 | 45 |<br>4000 + 1000 + 600 + 150 + 180 + 45 = 5975 | Kirsty's Plants with correct calculations | 5 | M1 for complete method with relative place value correct. Condone 1 multiplication error, addition not necessary.<br>M1 (dep) for addition of all the appropriate elements of the calculation or digits 5975<br>M1 for a complete method to find 120% of £52.50<br>A1 for 59.75 and 63(.00)<br>C1 (dep on M2) for correct conclusion for their figures<br><br>**OR**<br><br>M1 for the start of a method to divide £52.50 by 25, eg. 2 rem 2<br>M1 for a complete method to divide £52.50 by 25, condone one arithmetic error, or digits 21<br>M1 for a complete method to find 120% of '£2.10'<br>A1 for 2.52<br>C1 (dep on M2) for correct conclusion for their figures<br><br>**OR**<br><br>M1 for a complete method to find 120% of £52.50<br>M1 for the start of a method to divide '63' by 25, eg. 2 rem 13<br>M1 for a complete method to divide '63' by 25, condone one arithmetic error, or digits 252<br>A1 for 2.52<br>C1 (dep on M2) for correct conclusion for their figures |

| Question | | Working | Answer | Mark | Notes |
|---|---|---|---|---|---|
| 5 | | | 12 | 3 | M1 for a method to find volume of a cuboid, eg. 2 × 10 × 15 (= 300) or 5 × 5 × x  (= 25x) <br> M1 (dep) for "300" ÷ "25" oe <br> A1 cao <br><br> OR <br><br> M1 for 10 ÷5 (= 2) and 15 ÷ 5 (= 3) or 10 ÷5 (= 2) and 2 ÷ 5 (= 0.4) <br> M1 (dep) for 2 × "2" × "3" or 15 × "2" × "0.4" <br> A1 cao |
| 6 | (a) | | Relationship | 1 | B1 for a description of a dynamic relationship eg "The older the car the lower the price" or "The newer the car the greater the price" oe (accept negative correlation) |
| | (b) | | 6400 to 7000 | 2 | M1 for a single straight line segment with negative gradient that could be used as a line of best fit or vert. line from 3.5 or a point plotted at (3.5, $y$), where $y$ is in the range  6400 to 7000 <br> A1 for 6400 - 7000 |
| 7 | (a) | | Triangle with vertices at (−3, 3), (−3, 4) and (−1, 4) | 2 | B2 for a triangle with vertices at (−3, 3), (−3, 4), (−1, 4) <br> (B1 for triangle in correct orientation and size or rotated 90º clockwise about centre $O$ or three correct vertices without joining) |
| | (b) | | Reflection in line $y = x$ | 2 | B1 for reflection <br> B1 for (in the line) $y = x$ <br> Note: award no marks if more than one transformation is given |

| Question | | Working | Answer | Mark | Notes |
|---|---|---|---|---|---|
| 8 | (a) | | $2g - 3h$ | 2 | M1 for $2g$ or $-3h$<br>A1 for $2g - 3h$ or $-3h + 2g$ |
| | (b) | | $y(y - 2)$ | 1 | B1 |
| | (c) | | $p^5$ | 2 | M1 for $\dfrac{p^{3+4}}{p^2}\left(=\dfrac{p^7}{p^2}\right)$ or $p^{3-2} \times p^4 (= p^1 \times p^4)$<br><br>or $p^3 \times p^{4-2} (= p^3 \times p^2)$<br>A1 cao |
| 9 | | 40, 80, 120<br>15, 30, 45, 60, 75, 90, 105, 120<br><br><br><br>$40 = 2 \times 2 \times 2 \times 5$<br>$15 = 3 \times 5$ | 3 and 8 or any multiple of 3, 8 | 3 | M1 for multiples of both 40 and 15 (at least 2 of each shown but condone errors if intention is clear) or for $40 \times 15$<br>M1 (dep on M1) for a complete method to find a common multiple of 40 and 15, eg. 120, 240, 600 condoning one arithmetic error in any lists of multiples shown<br>A1 for 3, 8 or any multiple of 3, 8<br><br>OR<br><br>M1 for factors 2,2,2,5 and factors 3,5<br>M1 (dep on M1) for a complete method to find a common multiple of 40 and 15<br>A1 for 3, 8 or any multiple of 3, 8 |

| Question | Working | Answer | Mark | Notes |
|---|---|---|---|---|
| *10 | | Has enough<br>(with evidence) | 5 | M1 for splitting the shape (or showing recognition of the "absent" triangles) and using a method to find the area of one shape<br>M1 for a complete method to find the total area, (= 9 m$^2$)<br>M1 (dep on M1) for a method to find the number of packs required from their total area, eg. "9" ÷ 2 = 4.5 rounded up to 5<br>M1 for a method to find 75% of 24.80 or 75% of the cost of their total number of packs, eg. 24.80 × "5" × $\frac{75}{100}$ (= 93) or 24.80 × $\frac{75}{100}$ (= 18.6)<br>C1 for a conclusion supported by fully correct answers, eg. showing 9 (m$^2$), 5 (packs) and 93 or 7 (from 100 – 93)<br><br>OR<br><br>M1 for method to find 75% of £24.80, eg. 24.80 × $\frac{75}{100}$ (= 18.6)<br>M1 for method to find total number of packs Mary can buy, eg. 100 ÷ "18.60" = 5.3.... truncated to 5 or 10 (m$^2$)<br>M1 for finding area of one relevant shape or showing how one pack (2 m$^2$) can fit in the diagram<br>M1 (dep on previous M1) for complete method to show that 5 packs can cover the floor<br>C1 for a conclusion supported by fully correct answers, showing the capacity (10) greater than total area (9) |

| Question | | Working | Answer | Mark | Notes |
|---|---|---|---|---|---|
| 11 | (a) | | $\dfrac{2}{10}$ | 2 | M1 for $\dfrac{2}{a}$ with a > 2 or $\dfrac{b}{10}$ with $b$ < 10 <br><br> A1 for $\dfrac{2}{10}$ oe |
| | (b) | | £10 or 1000p | 3 | M1 for " $\dfrac{2}{10}$ " × 100 (= 20) or 30(p) × 100 (= 3000p or £30) <br><br> M1 (dep) for "30(p) × 100" – (£)1 × "20" oe <br> A1 ft from (a), provided the answer is not negative. Units must be shown |
| *12 | | | 40° with reasons | 4 | M1 for finding one related angle using parallel lines <br> A1 for $x$ = 40(º) <br> C2 for full reasons linked to appropriate method <br> eg. <u>alternate</u> <u>angles</u> are equal **and** <u>angles</u> in a <u>triangle</u> add up to <u>180°</u> <br> eg. <u>angles</u> on a straight <u>line</u> add up to <u>180°</u> **and** <u>corresponding</u> <u>angles</u> are equal **and** <u>alternate</u> <u>angles</u> are equal <br> eg. <u>co-interior (allied) angles</u> add up to <u>180º</u> **and** <u>exterior angle</u> of a <u>triangle</u> is equal to <u>sum</u> of <u>interior</u> opposite <u>angles</u> <br> Other solutions may include reasons such as: <br> <u>vertically opposite angles</u> are equal <br> the sum of <u>angles</u> at a <u>point</u> is equal to <u>360º</u> <br> (C1 (dep on M1) for one appropriate reason linked to parallel lines) |
| 13 | | | 48 | 5 | M1 for 8 – 2 (= 6) <br> M1 (indep) for $x^2 + 8^2$ (provided $x \le 8$) <br> M1 (dep on previous M1) fo $\sqrt{"x"^2 + 8^2}$ or $\sqrt{"100"}$ <br> M1 (dep on M2) for 4 × 2 + 4 × "10" <br> A1 cao |

| PAPER: 1MA0_1H | | | | |
|---|---|---|---|---|
| Question | Working | Answer | Mark | Notes |
| 14 | | 54 | 3 | M1 for any correct use of distance, speed, time formulae, eg.$10 \div 40$ (=0.25) or 15 min <br> M1 (dep) for a complete method to find speed from G to H, <br> eg.$18 \div (35 - \text{"15"}) \times 60$ oe. <br> A1 cao |
| 15 (a) | | (3, 6.5) | 2 | M1 for a method to find either the $x$ coordinate or the $y$ coordinate of the midpoint or $x = 3$ or $y = 6.5$ oe <br> A1 cao <br> [SC: B1 for (6.5, 3)] |
| *(b) | | No and correct working | 3 | M1 for a method to work out a gradient between any relevant pair of points (ie 2 of points A, B, C or D), eg. $\frac{9-4}{8--2}\left(= \frac{5}{10}\right)$ <br> M1(dep) for a method to work out the gradient between another pair of points which can be used for comparison; one gradient must be through D. <br> C1 for "no" and a correct explanation based on two correct gradients <br><br> OR <br><br> M1 for a method to work out a gradient between any relevant pair of points (ie 2 of points A, B, C or D), eg. $\frac{9-4}{8--2}\left(= \frac{5}{10}\right)$ <br> M1 (dep) for using their gradient to work out an equation of a straight line in the form $y = mx + c$ and substituting in an appropriate point <br> C1 for "no" and a correct explanation based on correct working <br><br> OR <br> M2 for (100, 55) or (102, 56) <br> C1 for "no" and a correct explanation based on correct coordinates. |

| PAPER: 1MA0_1H | | | | | |
|---|---|---|---|---|---|
| Question | | Working | Answer | Mark | Notes |
| 16 | (a) | | 4, 20, 56, 80, 94, 100 | 1 | B1 cao |
| | (b) | | graph | 2 | M1 ft from their table for at least 5 points plotted correctly at the ends of the intervals provided table values are cumulative, condoning one arithmetic error, or if the shape of the graph is correct for 5 or 6 points plotted not at the ends but consistently within each interval and joined<br>A1 cao for correct graph with points joined by curve or straight line segments |
| | (c) | | 47 to 49 | 1 | B1 for 47 to 49 or ft their cf graph at cf = 50 |
| | (d) | | 13 to 16 | 2 | M1 for reading a value from their cf graph at time = 63 (84 to 87)<br>A1 for answer in the range 13 to 16 or ft from their graph |
| 17 | | | 18 | 4 | M1 for a method to find the exterior angle of a pentagon<br>eg. 360 ÷ 5 (=72)<br>or the interior angle of a pentagon, eg. 180 – 360 ÷ 5 (= 108)<br>A1 for 72 or 108<br>M1 (dep M1) for a fully complete method to find the required angle, *DCF*<br>A1 for 18 or ft their interior or exterior angle |

| Question | | Working | Answer | Mark | Notes |
|---|---|---|---|---|---|
| 18 | | | Region identified | 4 | M1 for the graph of $x + y = 7$ or $y = 2x$ drawn<br>M1 for the graphs of $x + y = 7$, $y = 2x$ and $y = 3$ drawn<br>M1 for any correct shading (in or out), satisfying at least two correct inequalities where the shading must extend from the appropriate lines.<br>A1 for correct region identified by either shading in, or shading out; the letter R is not required. Accept without shading only with the correct region indicated by R.<br>NB accept lines that are solid or dotted/dashed etc or lines defined by unambiguous shading |
| 19 | (a) | | Proof | 3 | M1 for $\dfrac{6}{n}$ or $\dfrac{5}{n-1}$<br>M1 for $\dfrac{6}{n} \times \dfrac{5}{n-1}\left(= \dfrac{1}{3}\right)$<br>A1 for fully correct algebra leading to $n^2 - n - 90 = 0$ |
| | (b) | | 10 | 3 | M1 for correct start to a solution, eg. $(n \pm 10)(n \pm 9)$<br>or substitution into the quadratic formula, condoning one sign error<br>or $(n - 0.5)^2 - 0.25 - 90$<br>A1 for $(n - 10)(n + 9)$ or for 10 and $-9$ or $\dfrac{1 \mp 19}{2}$ oe<br>A1 for 10 only |
| 20 | | | $a = \dfrac{4p - 5}{3 + p}$ or | 4 | M1 for multiplying both sides by $4 - a$ as the first step<br>M1 (dep) for isolating their two terms in $a$<br>M1 (dep) for factorising their two term expression in $a$<br>A1 for $a = \dfrac{4p - 5}{3 + p}$ or $a = \dfrac{5 - 4p}{-p - 3}$ |

| PAPER: 1MA0_1H | | | | |
|---|---|---|---|---|
| Question | Working | Answer | Mark | Notes |
| 21 | | Proof | 3 | M1 for $(x =)$ 0.04545(...)<br>    or $1000x = 45.4545(...)$, accept $1000x = 45.\dot{4}\dot{5}$<br>    or $100x = 4.54545(...)$, accept $100x = 4.\dot{5}\dot{4}$<br>    or $10x = 0.4545(...)$ ,accept $10x = 0.\dot{4}\dot{5}$<br>M1 for finding the difference between two correct, relevant recurring decimals for which the answer is a terminating decimal<br>A1 (dep on M2) for completing the proof by subtracting and cancelling to give a correct fraction eg $\dfrac{45}{990} = \dfrac{1}{22}$ or $\dfrac{4.5}{99} = \dfrac{1}{22}$ |
| 22 | (a) | $\dfrac{1}{8}$ | 1 | B1 for $\dfrac{1}{8}$ oe |
| | (b) | 1.5 | 1 | B1 for 1.5 oe |
| | (c) | 3 | 2 | M1 for $\sqrt{12}\times\sqrt{12} - \sqrt{12}\times\sqrt{3} - \sqrt{3}\times\sqrt{12} + \sqrt{3}\times\sqrt{3}$<br>or $\sqrt{144} - \sqrt{36} - \sqrt{36} + \sqrt{9}$ oe. with no more than one sign error<br>A1 cao<br><br>OR<br><br>M1 for writing $(\sqrt{12} - \sqrt{3})$ as $(2\sqrt{3} - \sqrt{3})$ $(= \sqrt{3})$<br>A1cao |

| Question | | Working | Answer | Mark | Notes |
|---|---|---|---|---|---|
| 23 | | | $\dfrac{14}{3}$ | 5 | M1 for correct substitution into a volume formula for a cylinder or a cone, eg. $\dfrac{1}{3} \times \pi \times 3^2 \times 4$ (= 12π) or $\pi \times 3^2 \times (6-4)$ (= 18π) or $\pi \times 3^2 \times h$ (= 9πh) or $\pi \times 3^2 \times (h-2)$ <br> M1 for method to find volume after 5 hours, <br> eg. "12π" + "18π" (= 30π) <br> M1 (dep on M1) for use of a correct ratio, eg. "30π" × $\dfrac{9}{5}$ (= 54π) or "30π" × $\dfrac{4}{5}$ (= 24π) <br> M1 for deriving an equation in $h$, eg. "54π" = "9πh" + "12π" <br> A1 for $\dfrac{14}{3}$ or equivalent fraction |
| 24 | (a) <br> (i) | | (0, 5) | 3 | B1 cao |
| | (ii) | | (3, 10) | | B1 cao |
| | (iii) | | (1, 5) | | B1 cao |
| | (b) | | Translation of $\begin{pmatrix} 0 \\ -4 \end{pmatrix}$ oe | 1 | B1 for a correct transformation, eg. translation of $\begin{pmatrix} 0 \\ -4 \end{pmatrix}$ or translation of 4 units in the negative $y$-direction, oe. |

# Modifications to the mark scheme for Modified Large Print (MLP) papers.

Only mark scheme amendments are shown where the enlargement or modification of the paper requires a change in the mark scheme.

The following tolerances should be accepted on marking MLP papers, unless otherwise stated below:
Angles: ±5°
Measurements of length: ±5 mm

| Question | | Modification | Notes |
|---|---|---|---|
| **PAPER: 1MA0_1H** | | | |
| Q1 | (a) | An extra horizontal line has been added at the bottom of the diagram. | B2 for a correct ordered stem and leaf diagram (B1 for fully correct unordered or ordered with one error or omission) B1 (indep) for key (units not required) |
| Q1 | (b) | An extra horizontal line has been added at the bottom of the diagram. | M1 for a method to find "3" as a percentage of the total number of men, eg $\frac{"3"}{"20"} \times 100$ oe $\frac{"3" \times 5}{100}$ or ft from their diagram A1 for 15 cao |
| Q2 | (b) | MLP only: $x$ changed to $y$ | M1 for collecting the terms in $y$ or the number terms in an equation, eg. $5y - y + 4 = 14$ or $5y = 14 - 4 + y$ A1 for 2.5 oe (accept $\frac{10}{4}$) |

| Question | | Modification | Notes |
|---|---|---|---|
| Q5 | | 2 models provided for all candidates.<br>MLP also have diagrams.<br>In text, wording is added to give the dimensions of the first cheese. | M1 for a method to find volume of a cuboid, eg. $2 \times 10 \times 15$ (= 300) or $5 \times 5 \times x$ (= 25$x$)<br>M1 (dep) for "300" ÷ "25" oe<br>A1 cao<br><br>OR<br><br>M1 for $10 \div 5$ (= 2) and $15 \div 5$ (= 3) or $10 \div 5$ (= 2) and $2 \div 5$ (= 0.4)<br>M1 (dep) for $2 \times$ "2" $\times$ "3" or $15 \times$ "2" $\times$ "0.4"<br>A1 cao |
| Q6 | (a) | Diagram enlarged.<br>Crosses changed to filled in circles.<br>Label for horizontal axis left aligned.<br>Label for vertical axis placed above the axis.<br>Right axis is labelled. | B1 for a description of a dynamic relationship eg "The older the car the lower the price" or "The newer the car the greater the price" oe (accept negative correlation) |
| Q6 | (b) | Diagram enlarged.<br>Crosses changed to filled in circles.<br>Label for horizontal axis left aligned.<br>Label for vertical axis placed above the axis.<br>Right axis is labelled. | M1 for a single straight line segment with negative gradient that could be used as a line of best fit or vert. line from 3.5 or a point plotted at (3.5, $y$), where $y$ is in the range 6400 to 7000<br>A1 for 6400 - 7000 |
| Q7 | (a) | Grids enlarged.<br>Triangles A, B and C have dotty shading. | B2 for a triangle with vertices at (–3, 3), (–3, 4), (–1, 4)<br>(B1 for triangle in correct orientation and size or rotated 90º clockwise about centre $O$ or three correct vertices without joinin |
| Q7 | (b) | Grids enlarged.<br>Triangles A, B and C have dotty shading. | B1 for reflection<br>B1 for (in the line) $y = x$<br>Note: award no marks if more than one transformation is given |

| PAPER: 1MA0_1H | | |
|---|---|---|
| Question | Modification | Notes |
| Q10 | Diagram enlarged.<br>Measurement lines for 1 metre and 2.2 metres are removed.<br>Dashed measurement line for 3.4 metres. | M1 for splitting the shape (or showing recognition of the "absent" triangles) and using a method to find the area of one shape<br>M1 for a complete method to find the total area, (= 9 m$^2$)<br>M1 (dep on M1) for a method to find the number of packs required from their total area, eg. "9" ÷ 2 = 4.5 rounded up to 5<br>M1 for a method to find 75% of 24.80 or 75% of the cost of their total number of packs, eg. 24.80 × "5" × $\frac{75}{100}$ (= 93) or 24.80 × $\frac{75}{100}$ (= 18.6)<br>C1 for a conclusion supported by fully correct answers, eg. showing 9 (m$^2$), 5 (packs) and 93 or 7 (from 100 – 93)<br><br>OR<br><br>M1 for method to find 75% of £24.80, eg. 24.80 × $\frac{75}{100}$ (= 18.6)<br>M1 for method to find total number of packs Mary can buy,<br>eg. 100 ÷ "18.60" = 5.3.... truncated to 5 or 10 (m$^2$)<br>M1 for finding area of one relevant shape or showing how one pack (2 m$^2$) can fit in the diagram<br>M1 (dep on previous M1) for complete method to show that 5 packs can cover the floor<br>C1 for a conclusion supported by fully correct answers, showing the capacity (10) greater than total area (9) |

| PAPER: 1MA0_1H | | |
|---|---|---|
| **Question** | **Modification** | **Notes** |
| Q12 | Diagram enlarged.<br>AC, DF and PS made the same length.<br>Angle arc put inside the angle size. | M1 for finding one related angle using parallel lines<br>A1 for $x = 40(^\circ)$<br>C2 for full reasons linked to appropriate method<br>eg. <u>alternate</u> <u>angles</u> are equal **and** <u>angles</u> in a <u>triangle</u> add up to <u>180°</u><br>eg. <u>angles</u> on a straight <u>line</u> add up to <u>180°</u> **and** <u>corresponding</u> <u>angles</u> are equal **and** <u>alternate</u> <u>angles</u> are equal<br>eg. <u>co-interior (allied) angles</u> add up to <u>180°</u> **and** <u>exterior angle</u> of a <u>triangle</u> is equal to <u>sum</u> of <u>interior</u> opposite <u>angles</u><br>Other solutions may include reasons such as:<br><u>vertically opposite angles</u> are equal<br>the sum of <u>angles</u> at a <u>point</u> is equal to <u>360°</u><br>(C1 (dep on M1) for one appropriate reason linked to parallel lines) |
| Q13 | Diagrams enlarged.<br>8 cm moved above the diagram.<br>In text, wording gives the dimensions. | M1 for $8 - 2$ (= 6)<br>M1 (indep) for $x^2 + 8^2$ (provided $x \leq 8$)<br>M1 (dep on previous M1) fo $\sqrt{"x"^2 + 8^2}$ or $\sqrt{"100"}$<br>M1 (dep on M2) for $4 \times 2 + 4 \times "10"$<br>A1 cao |

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| **Question** | | **Modification** | **Notes** |
| Q16 | (a) | Frequencies changed to 5, 15, 35, 25, 25, 15, 5. | B1 cao |
| Q16 | (b) | Frequencies changed to 5, 15, 35, 25, 25, 15, 5.<br>Grid enlarged.<br>Both axes 3 cm for 20 with an intermediate line.<br>Label for horizontal axis left aligned.<br>Label for vertical axis placed above the axis.<br>Right axis is labelled. | M1 ft from their table for at least 5 points plotted correctly at the ends of the intervals provided table values are cumulative, condoning one arithmetic error, or if the shape of the graph is correct for 5 or 6 points plotted not at the ends but consistently within each interval and joined<br>A1 cao for correct graph with points joined by curve or straight line segments |
| Q16 | (c) | Frequencies changed to 5, 15, 35, 25, 25, 15, 5. | B1 for 47 to 49 or ft their cf graph at cf = 50 |
| Q16 | (d) | Frequencies changed to 5, 15, 35, 25, 25, 15, 5.<br>63 minutes changed to 65. | M1 for reading a value from their cf graph at time = 63 (85 to 90)<br>A1 for answer in the range 10 to 15 or ft from their graph |
| Q17 | | Diagram enlarged. | M1 for a method to find the exterior angle of a pentagon<br>eg. 360 ÷ 5 (=72)<br>or the interior angle of a pentagon, eg. 180 − 360 ÷ 5 (= 108)<br>A1 for 72 or 108<br><br>M1 (dep M1) for a fully complete method to find the required angle, *DCF*<br>A1 for 18 or ft their interior or exterior angle |

| Question | Modification | Notes |
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| Q18 | Grid enlarged. | M1 for the graph of $x + y = 7$ or $y = 2x$ drawn<br>M1 for the graphs of $x + y = 7$, $y = 2x$ and $y = 3$ drawn<br>M1 for any correct shading (in or out), satisfying at least two correct inequalities where the shading must extend from the appropriate lines.<br>A1 for correct region identified by either shading in, or shading out; the letter R is not required. Accept without shading only with the correct region indicated by R.<br>NB accept lines that are solid or dotted/dashed etc or lines defined by unambiguous shading |
| Q20 | MLP only: a changed to m. | M1 for multiplying both sides by $4 - m$ as the first step<br>M1 (dep) for isolating their two terms in $m$<br>M1 (dep) for factorising their two term expression in $m$<br>A1 for $m = \dfrac{4p-5}{3+p}$ or $m = \dfrac{5-4p}{-p-3}$ |
| Q23 | Model provided for all candidates.<br>Diagram also for MLP. | M1 for correct substitution into a volume formula for a cylinder or a cone,<br>eg. $\dfrac{1}{3} \times \pi \times 3^2 \times 4$ (= 12π) or $\pi \times 3^2 \times (6 - 4)$ (= 18π)<br>or $\pi \times 3^2 \times h$ (= 9πh) or $\pi \times 3^2 \times (h–2)$<br>M1 for method to find volume after 5 hours,<br>eg. "12π" + "18π" (= 30π)<br>M1 (dep on M1) for use of a correct ratio, eg. "30π" $\times \dfrac{9}{5}$ (= 54π)<br>or "30π" $\times \dfrac{4}{5}$ (= 24π)<br>M1 for deriving an equation in $h$, eg. "54π" = "9πh" + "12π"<br>A1 for $\dfrac{14}{3}$ or equivalent fraction |

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| **Question** | | **Modification** | **Notes** |
| Q24 | (a) (i) | Diagram enlarged.<br>Cross changed to filled in circle. | B1 cao |
| Q24 | (a)(ii) | Diagram enlarged.<br>Cross changed to filled in circle. | B1 cao |
| Q24 | (a)(iii) | Diagram enlarged.<br>Cross changed to filled in circle. | B1 cao |
| Q24 | (b) | Diagram enlarged.<br>Cross changed to filled in circle. | B1 for a correct transformation, eg. translation of $\begin{pmatrix} 0 \\ -4 \end{pmatrix}$ or translation of 4 units in the negative $y$-direction, oe. |