

| Paper: 1MA1/3H |          |      |                                                                                                                                                                 |                                                                                                                                                                    |
|----------------|----------|------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Question       | Answer   | Mark | Mark scheme                                                                                                                                                     | Additional guidance                                                                                                                                                |
| 1              | (a)      |      |                                                                                                                                                                 | 3 terms correct can be implied, eg $x^2 - 4x + c$                                                                                                                  |
|                |          | M1   | for 3 of 4 terms correct <b>or</b> 4 terms correct ignoring signs                                                                                               |                                                                                                                                                                    |
|                | (b)      | A1   | cao                                                                                                                                                             |                                                                                                                                                                    |
|                |          | B2   | for $3x(3x + 2)$                                                                                                                                                |                                                                                                                                                                    |
|                |          | (B1  | for $3(3x^2 + 2x)$ <b>or</b> $x(9x + 6)$ <b>or</b> $3x(ax + b)$ where $a$ and $b$ are integers <b>or</b> $(3x + 2)$ as a factor )                               |                                                                                                                                                                    |
| 2              | (a)      | M1   | for 836.4 <b>or</b> 5.304(809139) <b>or</b> 28.141<br><b>or</b> a truncated or rounded version of 157.668255 to no less than 3 sf                               | Answer must be given to at least 3 decimal places rounded or truncated<br>Accept a clear indication of the decimal point.<br>Check first 3 decimal places only     |
|                |          | A1   | for 157.668(255)                                                                                                                                                |                                                                                                                                                                    |
|                | (b)      | B1   | ft from part (a) provided answer to (a) has at least 5 sf                                                                                                       |                                                                                                                                                                    |
| 3              | 35 to 42 | M1   | for drawing a suitable line of best fit <b>or</b> for a line from $x = 34$<br><b>or</b> for a point marked on the grid at $(34, y)$ , $y$ in the range 33 to 44 | Line at $x = 34$ does not have to be full length of grid but should be in or reach the data set.<br>Acceptable values for the data set are<br>$y = 33$ to $y = 44$ |
|                |          | A1   | answer in the range 35 to 42                                                                                                                                    |                                                                                                                                                                    |

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|----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|----------|---|----|----|----|-----|-----|-----|-----|
| Question       | Answer                                                                                                                                                                                                                             | Mark     | Mark scheme                                                                                                                                                                                                         | Additional guidance                                               |                                                                                                                                                                                                                 |          |          |   |    |    |    |     |     |     |     |
| 4              | 18.6                                                                                                                                                                                                                               | M1       | for finding 4 products within intervals (including end points)                                                                                                                                                      |                                                                   | <table><tr><td>Min <math>fx</math></td><td>Max <math>fx</math></td></tr><tr><td>5</td><td>10</td></tr><tr><td>20</td><td>30</td></tr><tr><td>105</td><td>140</td></tr><tr><td>160</td><td>200</td></tr></table> | Min $fx$ | Max $fx$ | 5 | 10 | 20 | 30 | 105 | 140 | 160 | 200 |
|                |                                                                                                                                                                                                                                    | Min $fx$ | Max $fx$                                                                                                                                                                                                            |                                                                   |                                                                                                                                                                                                                 |          |          |   |    |    |    |     |     |     |     |
|                |                                                                                                                                                                                                                                    | 5        | 10                                                                                                                                                                                                                  |                                                                   |                                                                                                                                                                                                                 |          |          |   |    |    |    |     |     |     |     |
| 20             | 30                                                                                                                                                                                                                                 |          |                                                                                                                                                                                                                     |                                                                   |                                                                                                                                                                                                                 |          |          |   |    |    |    |     |     |     |     |
| 105            | 140                                                                                                                                                                                                                                |          |                                                                                                                                                                                                                     |                                                                   |                                                                                                                                                                                                                 |          |          |   |    |    |    |     |     |     |     |
| 160            | 200                                                                                                                                                                                                                                |          |                                                                                                                                                                                                                     |                                                                   |                                                                                                                                                                                                                 |          |          |   |    |    |    |     |     |     |     |
| M1             | for $\Sigma "fx" \div (1 + 2 + 7 + 8)$<br><b>or</b> $(7.5 \times 1 + 12.5 \times 2 + 17.5 \times 7 + 22.5 \times 8) \div (1 + 2 + 7 + 8)$<br><b>or</b> $("7.5" + "25" + "122.5" + "180") \div "18"$<br><b>or</b> $"335" \div "18"$ |          | $\Sigma "fx"$ <b>must</b> come from 4 products $fx$ within intervals (including end points)                                                                                                                         |                                                                   |                                                                                                                                                                                                                 |          |          |   |    |    |    |     |     |     |     |
| A1             | for 18.6(111...)                                                                                                                                                                                                                   |          |                                                                                                                                                                                                                     |                                                                   |                                                                                                                                                                                                                 |          |          |   |    |    |    |     |     |     |     |
| 5              | 37 000                                                                                                                                                                                                                             | B1       | cao                                                                                                                                                                                                                 |                                                                   |                                                                                                                                                                                                                 |          |          |   |    |    |    |     |     |     |     |
| 6              | 50                                                                                                                                                                                                                                 | B1       | for finding the time difference, eg, 1hr 18 mins or 78 mins oe                                                                                                                                                      | Allow 1.18 for this mark<br>118 scores B0                         |                                                                                                                                                                                                                 |          |          |   |    |    |    |     |     |     |     |
|                |                                                                                                                                                                                                                                    | P1       | for correct process to convert minutes to hours,<br>eg $18 \div 60$ (=0.3) <b>or</b> $78 \div 60$ (=1.3)<br><b>or</b> for a correct process to convert speed in miles per minute to mph<br>eg $"0.833.." \times 60$ | For a conversion of time or speed                                 |                                                                                                                                                                                                                 |          |          |   |    |    |    |     |     |     |     |
|                |                                                                                                                                                                                                                                    | P1       | for using speed = distance $\div$ time eg, $65 \div [\text{time}]$<br><b>or</b> $65 \div 78$ (=0.833..)                                                                                                             | [time] is what the candidate clearly indicates as time difference |                                                                                                                                                                                                                 |          |          |   |    |    |    |     |     |     |     |
|                |                                                                                                                                                                                                                                    | A1       | cao<br><br>SCB2 for 83(.333...) seen as the answer                                                                                                                                                                  |                                                                   |                                                                                                                                                                                                                 |          |          |   |    |    |    |     |     |     |     |

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| Question       | Answer              | Mark | Mark scheme                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Additional guidance                                                                       |
| 7              |                     |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                           |
| (a)            | $3.246 \times 10^7$ | B1   | cao                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Decision eg “No” may be seen by the question.<br>“She is incorrect” is equivalent to “no” |
| (b)            | 0.00496             | B1   | cao                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                           |
| (c)            | No with explanation | C1   | <p>No and explanation that B is bigger as the power of 10 is bigger.</p> <p><b>Acceptable examples</b></p> <p>She is incorrect as <math>10^8</math> is smaller than <math>10^9</math></p> <p>No, because B has more digits than A</p> <p>No, A is millions but B is billions</p> <p>No, if you subtract A from B the answer is positive (but if you subtract B from A the answer is negative)</p> <p>A= 621200000, B=4730000000, B is bigger</p> <p>No because she did not take into account standard form</p> <p>No as when you find the ordinary number B is greater than A</p> <p><b>Not acceptable examples</b></p> <p>Yes...</p> <p>A = 5 zeros after the number where as B = 7 zeros after the number</p> <p>No as <math>4.73 \times 10^9</math> is one more than <math>6.212 \times 10^8</math></p> <p>6.212 is to the power of 8 and 4.73 is to the power of 9 so there is an extra digit</p> <p>Asma is wrong because she has more numbers behind the decimal point which means that it will be bigger than A</p> <p>No B has more zeros</p> |                                                                                           |

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| Question       | Answer      | Mark | Mark scheme                                                                                                                                                                                                                | Additional guidance                                                      |
| 8              | 45          | P1   | for $180 - 117 (=63)$<br><b>or</b> states, or uses, exterior angle + $x = 117$                                                                                                                                             | Angles may be shown on the diagram.                                      |
|                |             | P1   | for process to find the exterior or the interior angle of the pentagon,<br>eg $360 \div 5 (=72)$ <b>or</b> $180 - (360 \div 5) (=108)$ <b>or</b> $((5-2) \times 180) \div 5 (=108)$                                        | Any angle labelled correctly as 63 and not contradicted scores this mark |
|                |             | P1   | for a complete process to find $x$ ,<br>eg $180 - "72" - "63"$ <b>or</b> $"108" - "63"$ <b>or</b> $117 - "72"$                                                                                                             | Exterior = 108 or interior = 72 does not score the mark                  |
|                |             | A1   | cao                                                                                                                                                                                                                        | An answer of 45 with no supporting working scores 0                      |
| 9              | Enlargement | B2   | vertices at (2.5, 1) (2.5, 6) (5, 6)                                                                                                                                                                                       |                                                                          |
|                |             | (B1  | for triangle of the correct size and orientation in the wrong position<br><br><b>or</b> a correct enlargement of a different scale factor centre (0, 1)<br><br><b>or</b> correct orientation with 2 of 3 vertices correct) |                                                                          |
| 10 (a)         | 8.5         | M1   | for multiplying both sides by 7 as a first step eg $9 + x = 7(11 - x)$ <b>or</b> dividing each term on the left hand side by 7 eg $\frac{9}{7} + \frac{x}{7} = 11 - x$                                                     | $\times 7$ written near the equation is not enough for this mark         |
|                |             | M1   | (dep M1) for method to isolate the $x$ terms on one side                                                                                                                                                                   |                                                                          |
|                |             | A1   | oe                                                                                                                                                                                                                         |                                                                          |
| (b)            | $4(y + 3)$  | B1   | $4(y + 3)$ <b>or</b> $4y + 12$                                                                                                                                                                                             |                                                                          |

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| Question       | Answer   | Mark | Mark scheme                                                                                                                                                                                                                                                                                                  | Additional guidance                                                        |
| 11             | 0.1709   | M1   | for one product, $0.07 \times 0.98 (=0.0686)$ <b>or</b> $0.93 \times 0.11 (=0.1023)$ <b>or</b> $0.07 \times 0.02 (=0.0014)$ <b>or</b> $0.93 \times 0.89 (= 0.8277)$                                                                                                                                          | If all products shown, award this mark                                     |
|                |          | M1   | for a fully correct method, eg $0.07 \times 0.98 + 0.93 \times 0.11$ <b>or</b> $1 - (0.07 \times 0.02) - (0.93 \times 0.89)$                                                                                                                                                                                 |                                                                            |
|                |          | A1   | oe                                                                                                                                                                                                                                                                                                           |                                                                            |
| 12             | Box plot | M1   | for correctly identifying one of the LQ (188), median (197) or UQ (209) from the stem leaf                                                                                                                                                                                                                   | May be implied by one of these values being correctly plotted.             |
|                |          | M1   | for showing a box and at least 3 correctly plotted values from 173, 188, 197, 209, 219                                                                                                                                                                                                                       |                                                                            |
|                |          | A1   | for a fully correct box plot                                                                                                                                                                                                                                                                                 |                                                                            |
| 13             | 739      | P1   | process to find the volume of C, eg $\pi \times 3^2 \times 25 (= 706.8583471$ or $225\pi)$                                                                                                                                                                                                                   | For use of 3.14<br>Volume of C is 706.5                                    |
|                |          | P1   | process to find the volume of A <b>or</b> the volume of B,<br>eg $"706.8..." \times \frac{2}{2+13} (= 94.24777961$ or $30\pi)$<br>or $"706.8..." \times \frac{13}{2+13} (= 612.6105675$ or $195\pi)$<br><b>or</b> process to work with density and ratio,<br>eg $(2 \times 1.21 + 13 \times 1.02) (= 15.68)$ | Volume of A is 94.2<br>Volume of B is 612.3                                |
|                |          | P1   | process to find the mass of C, eg $"30\pi" \times 1.21 (= 114.0398133) +$<br>$"195\pi" \times 1.02 (= 624.8627788)$<br><b>or</b> $"225\pi" \times "15.68" \div (2+13)$                                                                                                                                       | Mass of A is 113.982<br>Mass of B is 624.546                               |
|                |          | A1   | for an answer in the range 738.5 to 739                                                                                                                                                                                                                                                                      | Do not award accuracy mark if the figure is from obvious incorrect working |

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| Question       | Answer          | Mark | Mark scheme                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Additional guidance                       |
| 14             | $\frac{13}{20}$ | P1   | for finding the fraction who chose either soup ( $\frac{2}{5}$ oe) or chose prawns ( $\frac{3}{5}$ oe)<br><b>or</b> for process to share any number in the ratio 2 : 3<br>eg $100 \div (2 + 3) \times 2$ (=40)                                                                                                                                                                                                                                                                                                         | Starting number 100<br>Soup : Prawn 40:60 |
|                |                 | P1   | for a process that could lead to the proportion who chose lasagne or curry for either starter,<br>eg sharing 40% (soup) in the ratio 5 : 3<br><b>or</b> sharing 60% (prawns) in the ratio 1 : 5<br><b>or</b> $\frac{2}{5} \times \frac{5}{8}$ <b>or</b> $\frac{2}{5} \times \frac{3}{8}$ <b>or</b> $\frac{3}{5} \times \frac{1}{6}$ <b>or</b> $\frac{3}{5} \times \frac{5}{6}$<br><br><b>or</b> for continuing the process with their starting number to find the number who chose lasagne or curry for either starter | L:C      L:C<br>25:15    10:50            |
|                |                 | P1   | for a complete process to find the proportion who chose curry for <b>both</b> starters,<br>eg( $\frac{2}{5} \times \frac{3}{8}$ ) + ( $\frac{3}{5} \times \frac{5}{6}$ ) <b>or</b> to find the number who chose curry for <b>both</b> starter for their starting number                                                                                                                                                                                                                                                | 15 + 50 =65 and $\frac{15+50}{100}$       |
|                |                 | A1   | $\frac{13}{20}$ or equivalent fraction                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                           |

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| Question       | Answer | Mark | Mark scheme                                                                                                                                                                                                                 | Additional guidance                                                                                    |
| 15             | Proof  | M1   | for correct expressions for two consecutive even numbers eg $2n$ and $2n+2$                                                                                                                                                 | $(2n)^2 + (2n + 2)^2$<br>$= 4n^2 + 4n^2 + 8n + 4$<br>$= 8n^2 + 8n + 4 = 4(2n^2 + 2n + 1)$              |
|                |        | M1   | (dep M1) for expanding both expressions with at least one expansion fully correct eg $4n^2$ and $4n^2 + 4n + 4n + 4$<br><b>or</b> for factorising both terms and intention to square correctly eg $(2n)^2$ and $2^2(n+1)^2$ | <b>Or</b><br>$(2n)^2 + (2n - 2)^2$<br>$= 4n^2 + 4n^2 - 8n + 4$<br>$= 8n^2 - 8n + 4 = 4(2n^2 - 2n + 1)$ |
|                |        | A1   | complete proof                                                                                                                                                                                                              | <b>Or</b><br>$(2n)^2 + (2n + 2)^2$<br>$= 4(n)^2 + 4(n + 1)^2$<br>$= 4(n^2 + (n + 1)^2)$                |
| 16             | -7.5   | M1   | for stating a correct relationship, eg $y = \frac{k}{x^2}$ <b>or</b> $8 = \frac{k}{2.5^2}$                                                                                                                                  | Accept $y \propto \frac{k}{x^2}$ where $k$ may be 1                                                    |
|                |        | A1   | for $k = 50$ , could be seen in an equation                                                                                                                                                                                 |                                                                                                        |
|                |        | A1   | -7.5 oe                                                                                                                                                                                                                     |                                                                                                        |

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| Question       | Answer       | Mark | Mark scheme                                                                                                                                                                            | Additional guidance                                                                                                                                                                                                                                                 |
| 17             | 2.7 and -0.7 | M1   | for $x^2 - 3 = 2x - 1$ oe <b>or</b> $x^2 - 3 - 2x + 1 (=0)$<br><b>or</b> completing the square eg $(y=)(x-1)^2 - 1 - 2$                                                                | Line segments required<br>For 1.7 allow from 1.6 to 1.8<br>For -1.7 allow from -1.8 to -1.6<br><br>Points indicated or attempt to read off $x$ -axis at the appropriate points – maybe indicated by dashes<br><br>No marks will be awarded for correct answers only |
|                |              | M1   | (dep M1) draws graph of $y = 2x - 1$ <b>or</b> drawing the translated graph <b>or</b> describing the translation in words <b>or</b> $-1.7 + 1 (= -0.7)$<br><b>or</b> $1.7 + 1 (= 2.7)$ |                                                                                                                                                                                                                                                                     |
|                |              | M1   | shows the points of intersection clearly for the given quadratic graph and linear graph<br><b>or</b> for one correct solution from appropriate supportive working                      |                                                                                                                                                                                                                                                                     |
|                |              | A1   | for $x$ in the range 2.6 to 2.8 <b>and</b> -0.6 to -0.8<br><br>SCB2 for plotting $y = 2x + 1$ <b>and</b> values for $x$ in the range -1.1 to -1.3 <b>and</b> 3.1 to 3.3                |                                                                                                                                                                                                                                                                     |
| 18             | 1.95         | P1   | for correct substitution into the cosine rule,<br>eg $3.4^2 = 6.1^2 + 6.2^2 - 2 \times 6.1 \times 6.2 \times \cos BCA$                                                                 | Can be any angle within triangle $ABC$                                                                                                                                                                                                                              |
|                |              | P1   | for a full process to find $BCA$ eg $(\cos BCA =) \frac{6.1^2 + 6.2^2 - 3.4^2}{2 \times 6.1 \times 6.2}$<br><b>or</b> $(BCA =) 32(.08046913...)$                                       | P2 can be awarded for $BCA = 32(.08046913...)$                                                                                                                                                                                                                      |
|                |              | P1   | correct substitution into the sine rule,<br>eg $\frac{DC}{\sin("32.08..." \times \frac{2}{5})} = \frac{6.2}{\sin(180 - "32.08..." - ("32.08..." \times \frac{2}{5}))}$                 |                                                                                                                                                                                                                                                                     |
|                |              | P1   | for complete process to find $DC$ eg $(DC =) \frac{6.2 \times \sin "12.832"}{\sin "135.088"}$                                                                                          |                                                                                                                                                                                                                                                                     |
|                |              | A1   | Answer in the range 1.94 to 1.951                                                                                                                                                      | Must not come from incorrect processing                                                                                                                                                                                                                             |

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| 19             | 3.4            | M1   | for drawing a suitable tangent at $t = 6$                                                                                                                                                                                | Use of change in $y$ over change in $x$<br><br>Answers of $\frac{10}{6}$ oe scores no marks |
|                |                | M1   | for a full method to find the gradient of the tangent at $t=6$ , eg $20 \div 5.8$                                                                                                                                        |                                                                                             |
|                |                | A1   | answer in the range 3.05 to 3.7                                                                                                                                                                                          |                                                                                             |
| 20             | $n^2 - 2n$     | M1   | for correct deduction from differences,<br>eg 2nd difference of 2 implies $1n^2$<br><br><b>or</b> gives a quadratic expression which includes the term $1n^2$<br><br><b>or</b> states 1,4,9,16,25 and deduces 2,4,6,8,10 |                                                                                             |
|                |                | A1   | oe                                                                                                                                                                                                                       |                                                                                             |
| 21             | $\frac{1}{81}$ | M1   | for finding the probability of heads eg $\sqrt[4]{\frac{16}{81}}$ ( $= \frac{2}{3}$ )<br><br><b>or</b> for finding the probability of tails $1 - \sqrt[4]{\frac{16}{81}}$ ( $= \frac{1}{3}$ )                            | Seeing a probability of $\frac{2}{3}$ or $\frac{1}{3}$ is enough for this mark              |
|                |                | A1   | oe                                                                                                                                                                                                                       |                                                                                             |

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| 22             | 7x     | M1   | multiplication by reciprocal, eg $\frac{7(x-2)}{(x-2)(x+6)} \times \frac{x(x+6)(x-6)}{x-6}$                                                                                                                                                                                | Independent mark, may be awarded at any point       |
|                |        | M1   | for factorising the numerator or denominator of the 1 <sup>st</sup> fraction, eg $\frac{7(x-2)}{(x-2)(x+6)}$ <b>or</b> $\frac{7(x-2)}{x^2+4x-12}$ <b>or</b> $\frac{7x-14}{(x-2)(x+6)}$                                                                                     |                                                     |
|                |        | M1   | for factorising the denominator of the second fraction, eg $\frac{x-6}{x(x+6)(x-6)}$ ( $= \frac{1}{x(x+6)}$ )                                                                                                                                                              |                                                     |
|                |        | A1   | completing the algebra to reach 7x                                                                                                                                                                                                                                         |                                                     |
| 23             | 264    | P1   | correct substitution into the volume formula, eg $56.8 = \frac{1}{3} \times \pi \times r^2 \times 3.6$                                                                                                                                                                     | AOB does not need to be the subject of the equation |
|                |        | P1   | completes process to find base radius <b>or</b> the value of r <sup>2</sup> , eg $r = \sqrt{\frac{56.8 \times 3}{\pi \times 3.6}}$ (=3.88158...) or $r^2 = \frac{56.8}{1.2\pi}$ (=15.066)                                                                                  |                                                     |
|                |        | P1   | Uses Pythagoras to find the sloping length, eg $\sqrt{3.88^2 + 3.6^2}$ (=5.29....)                                                                                                                                                                                         |                                                     |
|                |        | P1   | process to find an equation in AOB, eg $\pi \times "3.88" \times "5.29" = \frac{AOB}{360} \times \pi \times "5.29" ^2$<br><b>or</b> $\frac{AOB}{360} \times \pi \times 2 \times "5.29" = 2 \times \pi \times "3.88"$<br><b>or</b> $\frac{AOB}{360} \times "5.29" = "3.88"$ |                                                     |
|                |        | A1   | answer in the range 263.9 to 264.1                                                                                                                                                                                                                                         |                                                     |

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| 24             | 4 : 3  | P1   | Process to find a missing vector using the given ratios as fractions, eg. $\frac{1}{3}$ of $\overrightarrow{OX}$ ( $=\frac{1}{3}\mathbf{a}$ ) or. $\frac{1}{4}$ of $\overrightarrow{OY}$ ( $=\frac{1}{4}\mathbf{b}$ )                                                                 | Might be embedded in their answer for ZP<br>The award of this mark implies the first two process marks. |
|                |        | P1   | for a process to use $\overrightarrow{ZO} = \overrightarrow{YX} = \mathbf{a} - \mathbf{b}$ oe                                                                                                                                                                                         |                                                                                                         |
|                |        | P1   | for a process to find either $\overrightarrow{ZP}$ or $\overrightarrow{ZR}$ in terms of $\mathbf{a}$ and $\mathbf{b}$ , eg. either $\overrightarrow{ZP} = \mathbf{a} - \mathbf{b} + \frac{1}{3}\mathbf{a}$ or $\overrightarrow{ZR} = \mathbf{a} - \mathbf{b} + \frac{1}{4}\mathbf{b}$ |                                                                                                         |
|                |        | P1   | for a process to write $\overrightarrow{ZP}$ and $\overrightarrow{ZR}$ as multiples of the same vector, eg. multiplying both by 12 to get the ratio, $\frac{4}{3}(\mathbf{a} - 0.75\mathbf{b})$ and $\mathbf{a} - 0.75\mathbf{b}$ respectively                                        |                                                                                                         |
|                |        | A1   | oe                                                                                                                                                                                                                                                                                    |                                                                                                         |

## Modifications to the mark scheme for Modified Large Print (MLP) papers: 1MA1 3H

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:  $\pm 5^\circ$

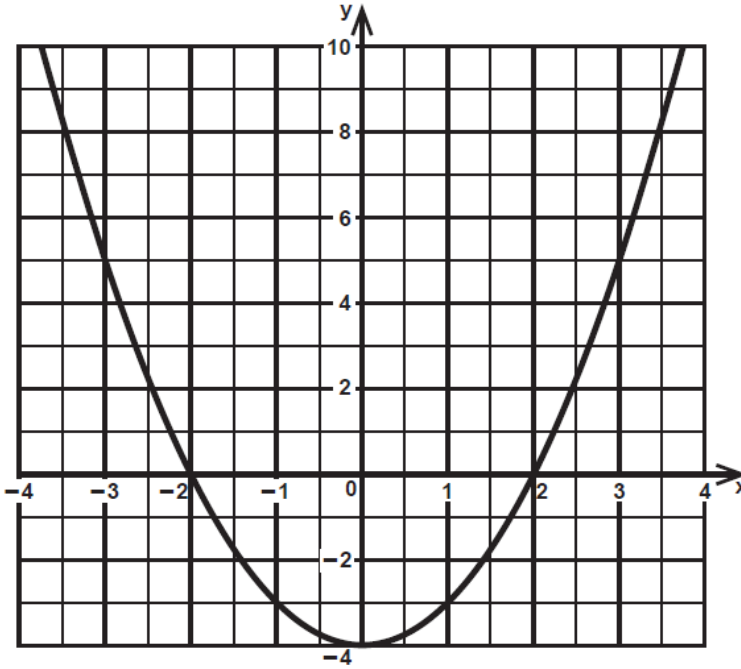
Measurements of length:  $\pm 5$  mm

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| PAPER: 1MA1/3H |  |                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                   |
|----------------|--|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Question       |  | Modification                                                                                                                                                                                                                               | Mark scheme notes                                                                                                                                                                                                                                                 |
| 1              |  | MLP only: $x$ changed to $y$ .                                                                                                                                                                                                             | Standard mark scheme but note the letter change.                                                                                                                                                                                                                  |
| 3              |  | Diagram enlarged. Crosses changed to solid circles. Right axis labelled.<br>Axes labels moved to the left of the horizontal axis and above the vertical axis.<br>Question wording changed to 'Jamie got a mark of 35 in the Science test.' | M1 for drawing a suitable line of best fit<br><b>or</b> for a line from $x = 35$ to a point at $(35, y)$ , $y$ in the range 30 – 45<br><b>or</b> for a point marked on the grid at $(35, y)$ , $y$ in the range 30 – 45<br>A1 for an answer in the range 30 to 45 |
| 4              |  | Frequency column widened.                                                                                                                                                                                                                  | Standard mark scheme                                                                                                                                                                                                                                              |
| 6              |  | Wording changed to 'The table shows the information on his Sat Nav at 13 30.'                                                                                                                                                              | Standard mark scheme                                                                                                                                                                                                                                              |
| 8              |  | Diagram enlarged. Angles moved outside angle arcs and angle arcs made smaller.<br>Wording added 'Two angles are marked $117^\circ$ and $x^\circ$                                                                                           | Standard mark scheme                                                                                                                                                                                                                                              |

| PAPER: 1MA1/3H |               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                              |       |    |       |    |               |    |             |    |         |                                                                                                                                                                                                                                                       |
|----------------|---------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|----|-------|----|---------------|----|-------------|----|---------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Question       |               | Modification                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Mark scheme notes                                                                                                                                            |       |    |       |    |               |    |             |    |         |                                                                                                                                                                                                                                                       |
| 9              |               | Wording added ‘It shows triangle A and triangle B on a coordinate grid.’<br>Diagram enlarged. Label removed from inside triangle. Shading removed.<br>Enlargement drawn at (2.5,1), (2.5,6) (5,6) Triangles labelled as ‘triangle A’ and ‘triangle B’.<br>Cross removed from (0,1) on the diagram. Grid cut at 7 on the x axis and 6 on the y axis.<br>Grid cut before the $x$ and $y$ axes labels.<br>Question wording now ‘Describe fully the transformation that maps triangle A onto triangle B.’<br>Three answer lines provided. Braille only: Two labelled shapes, triangle A and triangle B.        | Amended mark scheme as follows:<br>B1 for “enlargement scale factor 2.5”<br>B1 for “centre (0,1)”<br>Award B0 for any mention of a different transformation. |       |    |       |    |               |    |             |    |         |                                                                                                                                                                                                                                                       |
| 10             | (a)           | MLP only: $x$ changed to $y$ .                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Standard mark scheme but note letter change.                                                                                                                 |       |    |       |    |               |    |             |    |         |                                                                                                                                                                                                                                                       |
| 11             |               | Diagram enlarged.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Standard mark scheme                                                                                                                                         |       |    |       |    |               |    |             |    |         |                                                                                                                                                                                                                                                       |
| 12             |               | Diagrams enlarged. Key moved above and to the left of the stem and leaf diagram.<br>Horizontal line added to the base of the stem and leaf diagram.<br>Wording changed to ‘Look at Diagram 1 and Diagram 2 for Question 12... Diagram 1 shows a stem and leaf diagram. Diagram 2 shows a grid.’<br>Wording added ‘below Diagram 1’.<br>Numbers in the stem and leaf changed (see table below)<br><table><tr><td>17</td><td>5 7 9</td></tr><tr><td>18</td><td>4 5 5</td></tr><tr><td>19</td><td>0 0 1 3 4 5 8</td></tr><tr><td>20</td><td>1 3 4 4 5 7</td></tr><tr><td>21</td><td>2 3 3 5</td></tr></table> | 17                                                                                                                                                           | 5 7 9 | 18 | 4 5 5 | 19 | 0 0 1 3 4 5 8 | 20 | 1 3 4 4 5 7 | 21 | 2 3 3 5 | Amended mark scheme:<br>P1 for correctly identifying one of the LQ (185), median (195) or UQ (205) from the stem leaf<br>M1 for showing a box and at least 3 correctly plotted values from 175, 185, 195, 205, 215<br>A1 for a fully correct box plot |
| 17             | 5 7 9         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                              |       |    |       |    |               |    |             |    |         |                                                                                                                                                                                                                                                       |
| 18             | 4 5 5         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                              |       |    |       |    |               |    |             |    |         |                                                                                                                                                                                                                                                       |
| 19             | 0 0 1 3 4 5 8 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                              |       |    |       |    |               |    |             |    |         |                                                                                                                                                                                                                                                       |
| 20             | 1 3 4 4 5 7   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                              |       |    |       |    |               |    |             |    |         |                                                                                                                                                                                                                                                       |
| 21             | 2 3 3 5       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                              |       |    |       |    |               |    |             |    |         |                                                                                                                                                                                                                                                       |

**PAPER: 1MA1/3H**

| Question | Modification                                                                                                                                                                                                                                                                                                                                                                                                       | Mark scheme notes                                                                                                                         |
|----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|
| 14       | Wording added 'shown in the table.'                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                           |
| 17       | <p>Question wording 1<sup>st</sup> line changed to 'It shows the graph of <math>y = x^2 - 4</math>'</p> <p>Question demand changed to 'Use the graph to find estimates to the equation <math>x^2 - 2x - 3 = 0</math>.'</p> <p>Diagram enlarged and changed (see below). The graph line will go through (-3, 5) and (3, 5).</p>  | <p>Mark scheme first P1 now process to rearrange the equation to <math>x^2 - 4 = 2x - 1</math></p> <p>Otherwise standard mark scheme.</p> |
| 18       | Diagram enlarged.                                                                                                                                                                                                                                                                                                                                                                                                  | Standard mark scheme                                                                                                                      |
| 19       | <p>Diagram enlarged. Right axis labelled.</p> <p>Axes labels moved to the left of the horizontal axis and above the vertical axis.</p>                                                                                                                                                                                                                                                                             | Standard mark scheme                                                                                                                      |

| PAPER: 1MA1/3H |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|----------------|--|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Question       |  | Modification                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| 23             |  | Diagrams enlarged and model and shape may be provided.<br>Sector $OACB$ labelled as Diagram 1 and the cone labelled as Diagram 2.<br>Add wording 'Diagram 1 shows a sector $OACB$ ... Diagram 2 shows a hollow cone...'<br>There may be a model of the hollow cone and a cut out shape of the sector $OACB$ .<br>Wording added 'The formulae are shown above Diagram 1 and Diagram 2 in the Diagram Book.'<br>Dashed lines made longer and thicker. |
| 24             |  | Diagram enlarged.                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|                |  | Mark scheme notes                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|                |  | Standard mark scheme                                                                                                                                                                                                                                                                                                                                                                                                                                |
|                |  | Standard mark scheme                                                                                                                                                                                                                                                                                                                                                                                                                                |