

| Paper 1MA1: 1H |     | Working | Answer           | Notes  |
|----------------|-----|---------|------------------|--|
| 1              |     |         | 32.968           | M1 for correct method (condone one error)<br>A1 for digits 32968<br>A1 ft (dep M1) for correct placement of decimal pt                                       |
| 2              |     |         | $m^2 + 10m + 21$ | M1 for at least 3 terms out of a maximum of 4 correct from expansion<br>A1   |
| 3              |     |         | 152              | M1 Start to method $ABD = 38^\circ$ <b>and</b> $BAD$ or $DBC$ or $DCB = 38^\circ$<br>M1 $ADB$ or $BDC = 180 - 2 \times 38 (=104)$<br>A1 for 152 with working |
| 4              | (a) |         | 48               | P1 start to process eg. $3 \times 80 (=240)$<br>P1 '240' $\div 5$<br>A1  |
|                | (b) |         |                  | C1 eg. she may drive a different distance and therefore her average speed could be different   |

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| 5              |         | 28             | <p>P1 Process to start to solve problem eg. <math>\frac{3}{5} \times 40</math> or divide any number in the ratio 3:2</p> <p>P1 Second step in process to solve problem eg. <math>\frac{2}{5} \times 10</math> or find number of males/females under 25 for candidate's chosen number for complete process</p> <p>P1</p> <p>A1</p>  |
| 6              |         | Correct sketch | <p>C1 interprets diagram eg. draw a solid shape with at least two correct dimensions</p> <p>C1 draws correct prism with all necessary dimensions.</p>  |
| 7              |         | 400            | <p>P1 Start to process eg. <math>1200 \div 60</math></p> <p>A1 400 oe (accept number of whole pizzas eg. <math>400 \div 4 = 100</math> with 4 people per pizza)</p> <p>C1 Eg. Assumption that sample is representative of population – it may not be all 1200 people are going to the party – need less pizza if they don't, assume 4 people per pizza – if different may need more/fewer pizzas</p> |

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| 8              |     |         | $x = 21, y = 50$     | <p>P1 process to start solving problem eg. form an appropriate equation</p> <p>P1 complete process to isolate terms in <math>x</math></p> <p>A1 for <math>x = 21</math></p> <p>P1 complete process to find second variable</p> <p>A1 <math>y = 50</math></p> |
| 9              |     |         | $2.7 \times 10^4$    | <p>M1 For evidence of a correct method<br/>eg. <math>27 \times 10^{-4+7}</math></p> <p>A1</p>  |
| 10             | (a) |         | 8                    | B1   |
|                | (b) |         | $\frac{25}{4}$ oe    | <p>M1 for correct first step</p> <p>A1</p>   |
| 11             | (a) |         | $2.5 \times 10^{24}$ | <p>P1 process to estimate or divide</p> <p>P1 a complete process eg. <math>(1 \times 10^3) \div (4 \times 10^{-22})</math></p> <p>A1</p>   |
|                | (b) |         | Under-estimate       | <p>C1 fit from (i) Eg. under estimate as number rounded up but in denominator of fraction</p>  |

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| 12             |     |                               | 150 000             | M1 $60 \div 100^2$ or $900 \div 60$ or $900 \div "60"$<br>A1   |
| 13             |     |                               | 6.4                 | P1 Start to process eg. find scale factor (0.4) or $\frac{AE}{4} = \frac{4}{10}$<br>P1 Complete process to find area<br>A1   |
| 14             | (a) | Median = 22; lq = 18; uq = 26 | Box plot            | C1 Start to interpret information eg. one of median, lq, uq correct<br>C1 Starts to communicate information eg. box plot with box, whiskers and at least 3 of median, lq, uq, min and max correct<br>C1 Correct box plot |
|                | (b) |                               | Ben with reason     | M1 interpret information eg ft from box plot to find iqr (8) or range (11)<br>C1 ft eg. Ben with lower iqr (8) and range (11)  |
| 15             |     |                               | No with reason      | C1 Starts to formulate reason eg. No with partial explanation or $0.8 \times 0.7$ or starts to use figures<br>C1 No with full explanation eg. $0.8 \times 0.7 = 0.56$ so only 44% reduction                              |
| 16             |     |                               | $5(2x + 1)(2x - 1)$ | M1 for $5(4x^2 - 1)$<br>A1   |

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| Question       |  |         |  |   |
| 17             |  |         | $a = \frac{7-3r}{r-2}$                   | M1 Remove fraction and expand brackets<br>M1 Isolate terms in $a$<br>A1   |
| 18             |  |         | Given result                             | M1 For length scale factor eg $\sqrt{\frac{4}{9}}$ or 120 : 405<br>M1 $\left(\sqrt{\frac{4}{9}}\right)^3 \times 405$ or $2^3 : 3^3$ (from 120 : 405)<br>A1 120 from correct arithmetic or conclusion relating $2^3 : 3^3$ with $2^2 : 3^2$ with correct working |
| 19             |  |         | $x > 4, x < -1$                          | M1 rearrange quadratic and factorise<br>M1 critical values of 4 and -1 found<br>A1  |
| 20 (a)         |  |         | $(-2, -2)(-6, -2)$<br>$(-2, -4)(-4, -4)$ | M1 Shape drawn in correct orientation<br>A1   |
| (b)            |  |         | Enlargement sf -0.5<br>centre (0,0)      | C1  |

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| Question       |  |         |              |  |
| 21 (a)         |  |         | 25           | C1 For interpretation eg. area equated to 1750m<br>P1 Process to solve equation<br>A1  |
| (b)            |  |         | Description  | C1 Start to interpret graph eg. describe or give acceleration for one stage of the journey or state that acceleration is constant in all 3 parts<br>C1 Describe acceleration for all stages of the journey or give acceleration for all 3 stages (1.25 m/s <sup>2</sup> ; 0 m/s <sup>2</sup> ; -0.625 m/s <sup>2</sup> ) |
| 22             |  |         |              | C1 C1 for frequencies used for heights or areas not proportional to frequencies<br>C1 C1 for 2 <sup>nd</sup> mistake - final bar of wrong width  |
| 23             |  |         | Given result | C1 Correct first step towards simplifying expression eg. $\frac{\sqrt{2}}{\sqrt{2}+1}$<br>C1 Correct step to rationalise denominator<br>C1 Conclusion to given result  |

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| 24             |         | 25             | P1    | For process to start to solve. Eg use of $x$ and $4x$ or $x/5x$ and $4x/5x$                      |
|                |         |                | P1    | process to form equation eg $\frac{x}{5x} \times \frac{x-1}{5x-1} = \frac{6}{155}$               |
|                |         |                | P1    | Processes to eliminate fractions and reduce equation to linear form eg. $155x - 155 = 150x - 30$ |
|                |         |                | A1    |  |
| 25             |         | $3y - 4x = 11$ | P1    | process to start to solve problem eg. draw a diagram, find gradient of $AB$ (0.5)                |
|                |         |                | P1    | process to use gradients eg. find gradient of $BC$ (-2)  |
|                |         |                | P1    | Process to find $y$ coordinate of $C$ (9)  |
|                |         |                | P1    | Process to find equation of $AC$   |
|                |         |                | A1    |  |