<table>
<tr><th colspan="5">1MA0 Foundation Tier – Practice Paper 2F (Set D)</th></tr>
<tr><th colspan="2">Qn</th><th>Working</th><th>Answer</th><th>Mark</th><th>Notes</th></tr>
<tr><td>1</td><td></td><td>34 ÷ 10</td><td>3.4</td><td>2</td><td>M1 for attempt to sum all values and divide by 10 or 34 ÷ 10<br>A1 3.4, $3\frac{4}{10}, 3\frac{2}{5}$</td></tr>
<tr><td>2</td><td></td><td><table><tr><th>Bird</th><th>Freq</th><th>Angles</th></tr><tr><td>Magpie</td><td>15</td><td>75</td></tr><tr><td>Thrush</td><td>10</td><td>50</td></tr><tr><td>Starling</td><td>20</td><td>100</td></tr><tr><td>Sparrow</td><td>27</td><td>135</td></tr></table>Angles $\frac{15}{72}\times360$, $\frac{10}{72}\times360$, $\frac{20}{72}\times360$, $\frac{27}{72}\times360$</td><td>Correct pie chart</td><td>3</td><td>M1 for any one of $\frac{15}{'72'}\times360$, $\frac{10}{'72'}\times360$, $\frac{20}{'72'}\times360$, o.e.<br>(‘72’ must clearly come from adding frequencies)<br>A1 for 75 seen from correct working or 50 seen or 100 seen or 135 seen or<br>one sector of angle 50o or 100o or 135o labelled correctly with bird’s name or<br>all sectors correctly drawn<br>A1 for correct pie chart fully labelled with birds' names</td></tr>
<tr><td>3</td><td></td><td></td><td>Farm shop</td><td>4</td><td>M1 for 12.5 ÷ 2.5 (=5)<br>M1 for ‘5’×1.83 or ‘5’ × 183<br>A1 for (£)9.15 or 915(p)<br>C1 for decision ft working shown dep on at least M1</td></tr>
<tr><td>4</td><td></td><td></td><td>$\frac{12}{18}$</td><td></td><td>B1 for $\frac{12}{18}$ or $\frac{2}{3}$ oe</td></tr>
<tr><td>5</td><td></td><td></td><td>B or E</td><td>1</td><td>B1 for B or E (or both) (no extras)</td></tr>
<tr><td>6</td><td></td><td>$\frac{\sqrt{20.4}}{6.2\times0.48}=\frac{4.5166359}{2.976}$</td><td>1.5176(868)</td><td>2</td><td>B2 for 1.5176…<br>(B1 for sight of 4.51(66359..) or 4.52 or 2.976 or 2.98 or 1.51 or 1.52 or 1.518 or or 1.517 or 1.5177 or $\frac{\sqrt{510}}{5}$ )</td></tr>
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| 1MA0 Foundation Tier – Practice Paper 2F (Set D) | | | | | |
|---|---|---|---|---|---|
| **Qn** | | **Working** | **Answer** | **Mark** | **Notes** |
| 7 | | 3 ×9.58 + 12.61 + 7.06 + 4.41<br>(= 52.82) | Yes + working | 4 | M2 for 3 ×9.58 (=28.74) + 12.61 + 7.06 + 4.41 or<br>55 − 3 ×9.58 (=28.74) − 12.61 −7.06 − 4.41<br>(M1 for at least 2 correct costs seen)<br>A1 for 52.82 or 2.18<br>C1 (dep M1) for comparison and correct deduction using their total cost or amount left |
| 8 | | 200 ×0.7 | 140 | 2 | M1 for 200 ×0.7<br>A1 for 140 |
| 9 | (a) | | negative | 1 | B1 for negative |
| | (b) | | 10.3 - 11.7 | 2 | M1 for a single straight line segment with negative gradient that could be used as a line of best fit or an indication on the diagram from 2.5 on the x axis<br>A1 for an answer in the range 10.3 – 11.7 inclusive |
| 10 | (a) | | 51 | 3 | M1 200 × 25.82 (= 5164)<br>A1 for 5164 or 5200 or 5100 or 51.64 or 51.6(0) or 5160 or 52<br>A1 for 51 |
| | (b) | | 15.49 | 3 | M1 for 400 ÷ 25.82<br>A1 for 15.4918…<br>A1 for £15.49 or £15.50 |
| 11 | (a) | | 4000 | 2 | B1 cao |
| | (b) | | 3.5 | | B1 for 3.5 oe |
| 12 | | | $2\frac{1}{4}$ | 2 | M1 for 4m = 15 – 6 or clear attempt to subtract 6 from both sides of the equation<br>A1 for $2\frac{1}{4}$ or 2.25 or $\frac{9}{4}$ |

| 1MA0 Foundation Tier – Practice Paper 2F (Set D) | | | | | |
|---|---|---|---|---|---|
| **Qn** | | **Working** | **Answer** | **Mark** | **Notes** |
| 13 | | Triangle at (–2, 2),<br>(–2, 0),(–1,–1) | Correct figure | 2 | M1 for any translation<br>A1 for correct translation |
| 14 | | | 37.5 | 2 | M1 for a valid method eg reading from graph for 6 km then ×10<br>A1 for answer in range 35 – 40<br><br>OR<br>M1 for use of conversion factor 60 × 5/8 oe<br>A1 for answer in range 35 – 40 |
| 15 | | 250 – 0.42×250 – 250÷5×2<br>= 250 – 105 – 100 | 45 | 4 | M1 for $\frac{42}{100}$ × 250 oe (=105)<br>M1 for $\frac{2}{5}$ × 250 oe (=100)<br>M1 for 250 – '105' – '100'<br>A1 cao |
| 16 | | 20 × 20 × 40 = 16000 | 16000 cm3 | 3 | M1 for 20 × 20 × 40 or 0.2 × 0.2 ×0.4<br><br>A1 for for 16 000 or 0.016<br>B1 for $cm^3$ or $m^3$ (consistent with working) |
| 17 | | | 12 | 1 | B1 cao |
| 18 | (a) | 3.5 × 12 – 5 | 37 | 2 | M1 for 3.5 × 12 – 5 or 42 - 5<br>A1 cao |
| | (b) | 3.5 × –9 – –6 | –25.5 | 2 | M1 for 3.5 × –9 – –6 or 3.5×–9 + 6 or sight of –31.5<br>A1 for –25.5 or $-\frac{51}{2}$ or $-25\frac{1}{2}$ |

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<tr><td>19</td><td></td><td>3 × 4 = 12<br>12 m2 = 120000 cm2<br>20 × 20 = 400<br>120000 ÷ 400 = 300<br>300 ÷ 10 = 30</td><td>No with working</td><td>6</td><td>B1 for a correct conversion of 3 m or 4 m to cm or 20 cm to m or a correct and appropriate area conversion.<br>M1 for 300 × 400 (=120000) or 3 ×4 (=12)<br>M1 for 20 × 20 or 0.20 × 0.20<br>M1 for ‘120000’÷ ‘400’ or ‘12’ ÷ ‘0.04’<br>A1 for 1049.7(0)<br>C1 (dep M1) for comparison and correct deduction using their total cost with supportive working</td></tr>
<tr><td>20</td><td></td><td>$18.8 = 4x - 2.4$<br>$x = \frac{18.8 + 2.4}{4}$</td><td>5.3</td><td>2</td><td>M1 for intention to add 2.4 to 18.8<br>or to subtract –2.4 from 18.8 or to divide 18.8 and (–)2.4 by 4<br>A1 cao</td></tr>
<tr><td>21</td><td>(a)<br><br>(b)</td><td></td><td>31<br><br>No with appropriate reason</td><td>2<br><br>2</td><td>M1 for correct diagram of pattern number 10 with or without shading<br>A1 cao<br><br>M1 for attempt to divide 45 by 3<br>A1 for ‘No’ and comment that this is the number needed for pattern number 15</td></tr>
<tr><td>22</td><td></td><td><table><tr><td>$x$</td><td>-1</td><td>0</td><td>1</td><td>2</td><td>3</td></tr><tr><td>$y$</td><td>-5</td><td>-2</td><td>1</td><td>4</td><td>7</td></tr></table></td><td>Straight line from (–1, –5) to (3, 7)</td><td>3</td><td>(Table of values)<br>M1 for at least 2 correct attempts to find points by substituting values of x.<br>M1 ft for plotting at least 2 of their points (any points plotted from their table must be correctly plotted)<br>A1 for correct line between –1 and 3<br><br>(No table of values)<br>M2 for at least 2 correct points (and no incorrect points) plotted<br>OR line segment of y = 3x–2 drawn (ignore any additional incorrect segments)<br>A1 for correct line between –1 and 3</td></tr>
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<tr><td>23</td><td>(a)<br><br>(b)</td><td></td><td>2(2x + 5y)<br><br>x(x + 7)</td><td>1<br><br>1</td><td>B1 cao<br><br>B1 cao</td></tr>
<tr><td>*24</td><td></td><td>180 × 365 =65700<br>65700÷1000 =65.7<br>65.7×91.22 =5993.154<br>5993.154÷100 + 28.20= 88.13..<br><br><table><tr><th>D</th><th>U</th><th>C</th><th>T</th></tr><tr><td>366</td><td>65880</td><td>6010</td><td>88.30</td></tr><tr><td>365</td><td>65700</td><td>5993</td><td>88.13</td></tr><tr><td></td><td>65000</td><td>5929</td><td>87.49</td></tr><tr><td></td><td>66000</td><td>6020</td><td>88.40</td></tr><tr><td>364</td><td>65520</td><td>5976</td><td>87.96</td></tr><tr><td>360</td><td>64800</td><td>5911</td><td>87.31</td></tr><tr><td>~~336~~</td><td>~~60480~~</td><td>5517</td><td>83.37</td></tr></table></td><td>Decision ( Should have a water meter installed)</td><td>5</td><td>Per year<br>M1 for 180 × ‘365’ (=65700)<br>M1 for “65700”÷1000 (=65.7 or 65 or 66)<br>M1 for “65.7”×91.22 (=5993.....)<br>A1 for answer in range (£)87 – (£)89<br>C1(dep on at least M1) for conclusion following from working seen<br><br>OR (per day)<br>M1 for 107 ÷ ‘365’ (=0.293…)<br>M1 for 180 ÷ 1000 × 91.22 (=16.4196)<br>M1 for 28.2 ÷ ‘365’ + ‘0.164196’ (units must be consistent)<br>A1 for 29 – 30(p) and 24– 24.3(p) oe<br>C1(dep on at least M1) for conclusion following from working seen<br><br>OR<br>M1 for (107 – 28.20) ÷ 0.9122 (=86.384..)<br>M1 for ’86.384..’×1000 (=86384.5…)<br>M1 for ‘365’ × 180 (=65700)<br>A1 for 65700 and 86384.5..<br>C1(dep on at least M1) for conclusion following from working seen</td></tr>
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| 1MA0 Foundation Tier – Practice Paper 2F (Set D) | | | | | |
|---|---|---|---|---|---|
| **Qn** | | **Working** | **Answer** | **Mark** | **Notes** |
| 25 | | 25 ÷ 50 = 0.5 h = 30 min<br>25 ÷ 60 = 0.416 h = 25 min | 5 | 3 | M1 for 25 ÷ 50 or $\frac{60}{50}\times 25$ or 30 (min) or 0.5(h)<br>or 25 ÷ 60 or $\frac{60}{60}\times 25$ or 25 (min) or 0.41(6)(h)<br>M1(dep) '0.5' –'0.41(6)'or '30' – '25'<br>A1 cao |
| 26 | | Angle DEC = 180 – 41 =139<br>Angles on a straight line sum to 180o<br>Angle EDC = 60 – 38 or<br>Angle ABD = 180 – 120 – 38 (=22)<br>Co-interior/Allied angles of parallel lines sum to 180o or<br>Angles in a triangle sum to 180o and Alternate angles<br>x = )180 – '139' – '22' (=19)<br>Angles in a triangle sum to 180o<br><br>OR<br><br>Angle ADC = 180o – 120o = 60o<br><br>Co-interior/Allied angles of parallel lines sum to 180o Angle EDC = 22o<br>Angle ECD = 41o – 22o = 19o<br>Exterior angle of triangle equals sum of the two opposite interior angles<br><br>Angle ECD = 120o – 101o = 19 | x = 19° and reasons | 4 | M1 for DBC = 38o or<br>ADC = 60o(can be implied by BDC = 22o) or ABC = 60o or<br>DCB = 120o or<br>(ABD =) 180 – 120 –38 (=22)<br><br>M1 for (BDC =) 60 − 38 (=22) or BDC = '22' or<br>(DEC =) 180 − 41 (=139) or<br>(BCE =) 180 −41 − 38 (=101)<br><br>M1 (dep on both previous M1) for complete correct method to find x or (x = ) 19<br><br>C1 for x = 19o AND<br>Co-interior/allied angles of parallel lines sum to 180o<br>or<br>Opposite angles of a parallelogram are equal<br>or<br>Alternate angles<br>AND<br>Angles on a straight line sum to 180o<br>or<br>Angles in a triangle sum to 180o<br>or<br>Exterior angle of triangle equals sum of the two opposite interior angles<br>or<br>Angles in a quadrilateral sum to 360o |

| 1MA0 Foundation Tier – Practice Paper 2F (Set D) | | | | | |
|---|---|---|---|---|---|
| **Qn** | | **Working** | **Answer** | **Mark** | **Notes** |
| *27 | | (17–2.8)×9.5 =134.9<br>π×(3.8÷2)2 =11.34..<br>134.9 – 2×11.34 =112.21<br>112.21 ÷ 25 = 4.488 | 5 | 5 | M1 for (17–2.8)×9.5 (=134.9) or 17×9.5– 2.8×9.5 (=161.5 - 26.6 = 134.9)<br>M1 for π×(3.8÷2)2 (=11.33 – 11.35)<br>M1(dep on M1) for '134.9' – 2×'11.34'<br>A1 for 112 - 113<br>C1(dep on at least M1) for 'He needs 5 boxes' ft from candidate's calculation rounded up to the next integer. |
| 28 | | 45 ÷ (5 – 2) (=15)<br>'15'×2<br><br>OR<br>$45 \times \frac{2}{3}$ | 30 | 3 | M1 for 45 ÷ (5 – 2)<br>M1 for '15'×2<br>A1 cao for 30<br><br>OR<br>M2 for $45 \times \frac{2}{3}$ oe<br>(M1 for $45 \times \frac{1}{3}$)<br>A1 cao for 30<br><br>OR<br>M1 for (2, 5); 4, 10; 6, 15; 8, 20<br>M1 for a completly correct list up to 30, 75<br>A1 cao |
| 29 | | | | | C1 (indep) for Angles at a point add up to 360 (o) or angles in a full turn add up to 360 (o) |
| 30 | (a)<br><br>(b) | | correct angle marked<br>2 perpendicular lines marked | 1<br><br>1 | B1 for O in an obtuse angle<br><br>B1 for two perpendicular lines marked |

| 1MA0 Foundation Tier – Practice Paper 2F (Set D) | | | | | |
|---|---|---|---|---|---|
| **Qn** | | **Working** | **Answer** | **Mark** | **Notes** |
| 31 | (a) | | –1, 0, 1, 2, 3 | 2 | B2 for all 5 correct values; ignore repeats, any order<br>(B1 for 4 correct (and no incorrect values) eg. 0, 1, 2, 3 or one additional value, eg –1, 0, 1, 2, 3, 4) |
| | (b) | | $-4 < x \leq 3$ | 2 | B2 for $-4 < x \leq 3$ or $> -4$ and $\leq 3$<br>(B1 for $-4 < x$ or $x > -4$ or $x \leq 3$ or $3 \geq x$<br>or $> -4$ or $\leq 3$ or $-4 \leq x < 3$)<br>(NB Accept the use of any letter) |
| | (c) | $3y - 2 > 5$<br>$3y > 7$ | $y > \frac{7}{3}$ | 2 | M1 for clear intention to add 2 to both sides (of inequality or equation) or clear intention to divide all terms by 3<br>or $3y > 7$ or $3y < 7$ or $3y = 7$<br>A1 $y > \frac{7}{3}$ or $y > 2\frac{1}{3}$ or $y > 2.3\dot{}$<br>NB. final answer must be an inequality<br>(SC B1 for $\frac{7}{3}$ oe seen if M0 scored) |
| 32 | (a) | $84 \div 7$ (=12)<br>$120 \div 12$ | 10 | 2 | M1 for $84 \div 7$ (=12) or $7 \div 84$ (=0.083..)<br>A1 cao |
| | (b) | | Don't know + reason | 1 | B1 'Don't know' or 'No' with reason eg. Need to know how many medals Russian Federation won or pie chart shows proportion not number of medals won |
| 33 | (a) | (r,g) (r,b) (g,b) (g,r) (b,g) (b,r) (r,r) (b,b) (g,g) | Complete list | 2 | M1 for listing pairs (at least 5 correct pairs)<br>A1 for fully correct list (ignore repeats) |
| | (b) | | $\frac{1}{9}$ | 1 | B1 for $\frac{1}{9}$ oe |

| New Qn | Question Number | Paper Date | Skill tested | Maximum score | Mean Score | Mean Percentage | Percentage scoring full marks |
|---|---|---|---|---|---|---|---|
| 1 | Q13b | 2F 1206 | Calculate mean | 2 | 1.08 | 54 | 41.6 |
| 2 | Q17 | 2F 1211 | Produce pie charts | 3 | 1.55 | 52 | 36.4 |
| 3 | Q23 | 2F 1206 | Solve word problems | 4 | 2.08 | 52 | 39.2 |
| 4 | Q18ii | 2F 1206 | Find the probability of an event happening using theoretical probability | 1 | 0.51 | 51 | 51.4 |
| 5 | Q13b | 2F 1211 | Distinguish between scalene, equilateral, isosceles and right-angled triangles | 1 | 0.50 | 50 | 50.0 |
| 6 | Q20 | 2F 1211 | Use calculators effectively and efficiently, including statistical functions | 2 | 0.98 | 49 | 38.0 |
| 7 | Q12 | 2F 1211 | Add, subtract, multiply and divide any number | 4 | 1.83 | 46 | 11.5 |
| 8 | Q22b | 2F 1211 | Estimate the number of times an event will occur, given the probability and the number of trials | 2 | 0.92 | 46 | 41.2 |
| 9a | Q26a | 2F 1206 | Interpret scatter graphs | 1 | 0.46 | 46 | 46.2 |
| 9b | Q26b | 2F 1206 | Interpret scatter graphs | 2 | 0.97 | 49 | 40.6 |
| 10a | Q25a | 2F 1206 | Solve word problems | 3 | 1.31 | 44 | 18.5 |
| 10b | Q25b | 2F 1206 | Solve word problems | 3 | 1.35 | 45 | |
| 11a | Q11bi | 2F 1211 | Convert metric units to metric | 1 | 0.45 | 45 | 45.1 |
| 11b | Q11bii | 2F 1211 | Convert between metric volume measures | 1 | 0.43 | 43 | 42.4 |
| 12 | Q19c | 2F 1206 | Solve linear equations, with integer coefficients, in which the unknown appears on either side or on both sides of the equation | 2 | 0.83 | 42 | 40.1 |
| 13 | Q27 | 2F 1211 | Translate a given shape by the vector [2, -3] | 2 | 0.79 | 40 | 22.0 |
| 14 | Q12b | 2F 1206 | Interpret straight-line graphs for real-life situations | 2 | 0.80 | 40 | 39.1 |
| 15 | Q20 | 2F 1206 | Interpret fractions, decimals and percentages as operators | 4 | 1.61 | 40 | 29.2 |
| 16 | Q09 | 2F 1211 | Find the volume of a prism | 3 | 1.11 | 37 | 19.5 |
| 17 | Q15c | 2F 1211 | Know the terms face, edge and vertex | 1 | 0.32 | 32 | 32.4 |
| 18a | Q14a | 2F 1206 | Substitute numbers into a formula | 2 | 1.04 | 52 | 20.5 |
| 18b | Q14b | 2F 1206 | Substitute numbers into a formula | 2 | 0.59 | 30 | |
| 19 | Q14 | 2F 1211 | Add, subtract, multiply and divide any number | 6 | 1.62 | 27 | 10.1 |
| 20 | Q18b | 2F 1211 | Rearrange simple equations | 2 | 0.53 | 27 | 22.5 |
| 21a | Q15b | 2F 1206 | Find a specific term in a sequence | 2 | 0.73 | 37 | 34.8 |
| 21b | Q15c | 2F 1206 | Identify which terms cannot be in a sequence | 2 | 0.49 | 25 | 23.9 |
| 22 | Q21 | 2F 1206 | Plot and draw graphs of straight lines of the form $y = mx + c$ | 3 | 0.74 | 25 | 20.4 |
| 23a | Q26a | 2F 1211 | Factorise algebraic expressions by taking out common factors | 1 | 0.22 | 22 | 22.5 |
| 23b | Q26b | 2F 1211 | Factorise algebraic expressions by taking out common factors | 1 | 0.24 | 24 | 24.3 |
| 24 | Q28 | 2F 1206 | Convert measurements from one unit to another | 5 | 1.03 | 21 | 7.2 |

| New Qn | Question Number | Paper Date | Skill tested | Maximum score | Mean Score | Mean Percentage | Percentage scoring full marks |
|---|---|---|---|---|---|---|---|
| 25 | Q23 | 2F 1211 | Understand and use compound measures including speed | 3 | 0.59 | 20 | 9.4 |
| 26 | Q24 | 2F 1211 | Understand and use the angle properties of parallel and intersecting lines, triangles and quadrilaterals | 4 | 0.78 | 20 | 1.3 |
| 27 | Q27 | 2F 1206 | Find circumferences and areas of circles | 5 | 0.88 | 18 | 4.3 |
| 28 | Q22 | 2F 1206 | Solve a ratio problem in context | 3 | 0.49 | 16 | 12.1 |
| 29 | Q10ii | 2F 1206 | Give reasons for calculations | 1 | 0.12 | 12 | 12.2 |
| 30a | Q05b | 2F 1206 | Distinguish between acute, obtuse, reflex and right angles | 1 | 0.51 | 51 | 50.8 |
| 30b | Q05c | 2F 1206 | Mark perpendicular lines on a diagram | 1 | 0.11 | 11 | 10.7 |
| 31a | Q25a | 2F 1211 | Solve simple linear inequalities in one variable, and represent the solution set on a number line | 2 | 0.73 | 37 | 17.5 |
| 31b | Q25b | 2F 1211 | Use the correct notation to show inclusive and exclusive inequalities | 2 | 0.23 | 12 | 5.5 |
| 31c | Q25c | 2F 1211 | Solve simple linear inequalities in one variable, and represent the solution set on a number line | 2 | 0.14 | 7 | 2.3 |
| 32a | Q17a | 2F 1206 | Interpret pie charts | 2 | 0.73 | 37 | 29.0 |
| 32b | Q17b | 2F 1206 | Interpret pie charts | 1 | 0.07 | 7 | 3.8 |
| 33a | Q06b | 2F 1211 | List all outcomes for two successive events systematically | 2 | 0.50 | 25 | 22.7 |
| 33b | Q06c | 2F 1211 | Understand and use estimates or measures of probability from theoretical models | 1 | 0.05 | 5 | 1.2 |
| | | | | **100** | **33.04** | **33** | |