**Functional Skills in Mathematics Level 1 – Mark scheme**

**Paper: RFSML1SAM01**

| Task 1 NC | Process (Task description) | Total mark | Mark allocation | Comments | PS or US | Subject content |
|---|---|---|---|---|---|---|
| **Question 1** | Calculate perimeter of shape | 2 | **1 mark**: Any valid method used to calculate perimeter, eg<br>7.4 + 12.6 + 11.4 + 6.2 + 4 + 6.4<br>OR<br>(11.4 + 12.6) × 2 | Units not required.<br>Accept any other valid method.<br>Accept if 48 seen. | US | 22b |
| | | | **1 mark**: Correct perimeter shown ie 48m | Units not required. | US | 22b |
| **Question 2** | Calculate square of 17 | 1 | **1 mark**: (17 x 17) = 289 | | US | 6 |
| **Question 3** | Calculate number of marbles | 1 | **1 mark**: Correct number of white marbles: 7 | | US | 17a |
| **Question 4** | Correct addition of numbers | 1 | **1 mark**: Correct answer 33.22 | | US | 11a |
| **Question 5** | Correct division by 100 | 1 | **1 mark**: Correct answer 0.468 | | US | 3b |

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| **Question 6a** | Calculate 3 sides of the garden area<br>Correct method to find number of strips<br><br>Correct number of border strips needed<br><br>Cost found using estimate of numbers | 4 | **1 mark**: Correctly calculated 3 sides of the garden area (3 sides) = 42 (m) | Accept 42 seen. | PS | 5 |
| | | | **1 mark**: Correct method used following rule ie, 42 ÷ 3 × 2 | FT from their calculation of 3 sides. | PS | 5 |
| | | | **1 mark**: Correct answer 28 | | PS | 5 |
| | | | **1 mark**: Valid method used to estimate, eg (10 × 30) = 300) OR (10 × 28) (= 280) | Allow FT for their number of border strips.<br><br>Correct money notation not required.<br><br>Do not award if 9.89 not rounded. | PS | 12a |
| **Question 6b** | Conversion from ml to l or l to ml<br><br>Calculate number fence panels | 2 | **1 mark**: Conversion from l to ml or ml to l, eg 1.5 × 1000 = 1500 OR 3 × 1000 = 3000 OR 300 ÷ 1000 = 0.3 | Units not required.<br>Award mark if 10 seen as their answer. | PS | 20c |
| | | | **1 mark**: Correct number of fence panels, ie 10 panels | | PS | 20c |
| **Question 6c** | Valid method to calculate length or width<br><br>Correct actual length and width shown | 2 | **1 mark**: Valid method to find appropriate length or width of table, eg 5.5 x 20 = (110 cm) OR 11 x 20 = (220 cm) | Units not required.<br><br>May be implied if 110 or 220 seen. | PS | 21 |
| | | | **1 mark**: Correct length AND width of table shown, ie 110 (cm) and 220 (cm) | Both dimensions required for the mark.<br><br>Units not required.<br><br>Accept correct conversion to metres. | PS | 21 |
| **Question 7** | Identify missing dimension of the bedroom. | 1 | **1 mark**: 7.5 (m) identified 30 ÷ 4 = 7.5 | Units not required.<br>Award for correct answer seen. | PS | 22a |

| Task 2 | Process (Task description) | Total mark | Mark allocation | Comments | PS or US | Subject content (SoS) |
|---|---|---|---|---|---|---|
| **Question 8** | Express probability as a fraction | 1 | **1 mark**: 1/3 or one third shown | Accept 6/18 | US | 31 |
| **Question 9** | Calculate percentage from fraction | 1 | **1 mark:** 62.5 (%) | | US | 16b |
| **Question 10** | Round to two decimals | 1 | **1 mark**: 6.67 | Do not accept 6.66. | US | 12b |
| **Question 11a** | Calculate amount of flour needed to make cakes. | 4 | **1 mark**: Valid method used to find amount of flour needed, eg<br>72 ÷ 12 (= 6) AND 6 × 400 OR<br>400 ÷ 12 (= 33.33) AND 33.33 × 72 OR<br>2399.99 or 2400 seen | May be implied if 350 or 0.350 seen for amount of flour left over. | PS | 17b |
| | Convert fraction to decimal | | **1 mark**: Conversion of ¾ kg to decimal, g or kg, eg 2.75kg OR<br>0.75kg OR<br>2750g OR<br>750g. | May be implied if 350 or 0.350 seen for amount of flour left over. | PS | 16a |
| | Calculate amount of flour left over | | **1 mark**: Correct amount of flour left over (based on rounded number of cakes), eg<br>2750 – 2400 = 350(g) OR 0.35 (kg). | Do not award for 150g or 0.15 kg.<br><br>Allow FT for their amount of flour. | PS | 20b |
| | Show correct units | | **1 mark**: Correct units shown (g or kg) for their answer. | Allow FT for incorrect calculations.<br><br>Do not allow 350kg or 0.35g. | PS | 20b |
| **Question 11b** | Calculate time taken to prepare and bake loaves of bread<br>Show amount of time taken | 3 | **1 mark**: Valid method used for adding up time taken, eg (6 × 7) + 45m + 10m (= 97m). | May be implied if 97 seen. | PS | 20e |
| | | | **1 mark**: Correct time of 97 (minutes). | Units not required. | PS | 20e |
| | Show time to start making loaves | | **1 mark**: Correct time given to start making loaves of bread, eg 4.38 (am) | Allow FT from their calculated time. | PS | 20e |

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| **Question 11c** | Conversion from pence to pounds | 4 | **1 mark**: Evidence of conversion from pence to pounds or vice versa, eg<br>0.13 OR<br>0.56 OR<br>140 OR<br>2.60 OR<br>8.40 OR<br>13.80 | Award if 13.8 seen. | PS | 20d |
| | Method for calculating percentage | | **1 mark:** Method to calculate percentage discount, 20 ÷ 100 x 13.80 OR<br>0.2 x 13.80 OR<br>Other valid method | Award if 2.76 seen and FT | PS | 19 |
| | Calculate percentage discount | | **1 mark**: Correct 15% discount, ie<br>2.76 | Correct money notation not required. | PS | 19 |
| | Calculated discounted price | | **1 mark**: Correctly calculated price after discount, ie 11.04 | Correct money notation not required. | PS | 19 |
| **Question 11d** | Approximation of the trade discount | 1 | **1 mark:** Valid method to check the trade discount, e.g.<br>20 ÷ 100 × 14 OR<br>0.2 × 14 | Accept any valid method to approximate answer. | PS | 12a |

| Task 3 | Process (Task description) | Total mark | Mark allocation | Comments | PS or US | Subject content |
|---|---|---|---|---|---|---|
| **Question 12** | Write number in digits | 1 | **1 mark**: Correctly writing the number in digits, ie 190493 | Award if comma or space between 1000s and 100s. | US | 1a |
| **Question 13** | Identify highest number | 1 | **1 mark**: Bank E (4.76) identified. | Award for correct bank or interest rate identified. | US | 10b |
| **Question 14** | Complete frequency table | 1 | **1 mark:**<br>**Number of marks** / **Frequency**<br>0 – 9 / 0<br>10 – 19 / 2<br>20 – 29 / 4<br>30 – 39 / 6<br>40 – 49 / 4 | Allow tally or totals. | US | 28a |
| **Question 15a** | Correct stat shown for matches | 3 | **2 marks**: Correct values shown for all matches, ie<br>Match 1: 3<br>Match 2: 3<br>Match 3: 4<br>Match 4: -2 | Award 1 mark for any 2 correct values shown. | PS | 2 |
| | Correct totals | | **1 mark:** Correct values shown for totals row, ie<br>Totals: 7, 13, -6 | | PS | 2 |
| **Question 15b** | Explain probability | 1 | **1 mark:** Correct answer with explanation, eg<br>No, because there is 0.88 chance of rainfall, which means there is a high chance that it will rain on Saturday OR<br>Other valid explanation | Do not accept 'no' without explanation. | PS | 30 |

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| **Question 15c** | Valid method to find perimeter of pitch<br><br>Conversion from m to km or km to m<br><br>Correct number of laps | 3 | **1 mark**: Valid method to find perimeter of pitch, eg<br>18 + 18 + 36 + 36 = OR<br>(18 × 2) + (36 × 2) = OR<br>Any other correct method | | PS | 22b |
| | | | **1 mark**: Evidence of conversion from m to km or vice versa. Eg<br>0.108 OR<br>1000m | Units not required | PS | 20a |
| | | | **1 mark**: Correct number of full laps around the pitch, ie<br>10 | Do not accept 9 laps/times around the pitch | PS | 12a |
| **Question 15d** | Calculate percentage | 3 | **1 mark:** correct method to calculate percentage**,** eg 35 ÷ 100 x 380 OR<br>0.55 x 380 OR<br>20 ÷ 100 x 380 OR<br>0.2 x 380 OR<br>0.45 x 380 OR<br>45 ÷ 100 x 380 OR<br>Other valid percentage calculation | May be implied if 209, 133 or 76 seen.<br><br>Award if 171 seen. | PS | 14 |
| | | | **1 mark:** correct number of adult tickets, eg 171 adult tickets sold | | PS | 14 |
| | | | **1 mark:** correct answer, eg 'No, Ryan was not correct' | Only award if valid calculation AND/OR 171 seen | PS | 14 |
| **Question 15e** | Subtract decimals from decimals<br><br>Calculate answer | 2 | **1 mark:** correct subtraction method, eg<br>(2.94 x 380 =) 1117.2 AND<br>3697.40 – 1117.2 | Award if 2580.20 seen.<br><br>FT for incorrect total donation. | PS | 11b |
| | | | **1 mark:** correct answer, eg<br>£2580.20 | £ sign not required. | PS | 11b |

| Task 4 | Process (Task description) | Total mark | Mark allocation | Comments | PS or US | Subject content |
|---|---|---|---|---|---|---|
| **Question 16** | Appropriate scale given.<br>Bars at correct heights<br><br>Graph appropriately labelled | 3 | **1 mark**: appropriate scale given | Do not award for line graph. | US | 27b |
| | | | **1 mark:** bars at correct height (tolerance plus/minus 1 division) | | US | 27b |
| | | | **1 mark**: Graph contains appropriate axis labels and title, eg<br>X axis: Months<br>Y axis: Laptops<br>Title: Graph to show number of laptops sold over 6 months | Accept similar wording for axis labels and title. | US | 27b |
| **Question 17a** | Identify correct net<br>Justify answer | 2 | **1 mark**: Net A. | Do not award without supporting valid explanation. | PS | 25b |
| | | | **1 mark**: Any valid reason, eg<br>“Net B is the shape of a cube so does not match the picture.” OR<br>“The other two boxes are too high compared to the picture.” OR<br>“The height of the box in the picture is very small which matches the dimensions of Net A.” OR<br>“Net C does not have a lid” OR<br>“Net D dimensions are too large” | Accept any valid reason given for choosing their net. | PS | 25b |

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| **Question 17b** | Calculate number of small boxes that will fit in large box | 4 | **1 mark**: Valid method used to calculate number of small boxes that will fit in **either** large box, eg<br>**Box A method**<br>50 ÷ 10 = 5<br>8 ÷ 8 = 1<br>12 ÷ 3 = 4<br>AND<br>5 × 1 × 4 (= 20) OR<br>**Box B method**<br>50 ÷ 10 = 5<br>16 ÷ 8 = 2<br>15 ÷ 3 = 5 AND<br>5 × 5 × 2 (= 50) OR<br>**Box A (volume method)**<br>10 × 8 × 3 = 240<br>50 × 8 × 12 = 4800<br>4800 ÷ 240 (= 20) OR<br>**Box B (volume method)**<br>50 × 15 × 16 = 12000<br>12000 ÷ 240 (= 50) | | PS | 23 |
| | Identify correct number of small boxes that will fit in large box | | **1 mark**: Correct answer given for **either** box. Box A: 20 OR Box B: 50 | | PS | 23 |
| | Calculate number of large boxes needed for 100 bracelets | | **1 mark**: Correct number found for **both** boxes, eg<br>Box A: 100 ÷ 20 = 5<br>Box B: 100 ÷ 50 = 2 | Allow FT for their number of small boxes per large box providing answer is feasible. | PS | 23 |
| | Calculate cost of buying enough large boxes | | **1 mark**: Correct calculation and answer given for cost of each box, eg<br>Box A: 5 × £0.70 = £3.50<br>Box B: 2 × £1.80 = £3.60 | Allow FT for their number of boxes calculated. | PS | 23 |

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|---|---|---|---|---|---|---|
| **Question 18a** | Calculate mean of bracelets sold, or totals of necklaces, rings and earrings | 2 | **1 mark**: Correct mean number of bracelets sold, eg<br>22 + 28 + 23 + 38 + 44 + 97 = 252 AND<br>252 ÷ 6 = 42 OR<br>Correct total of either necklaces, rings and earrings sold, eg<br>47 × 6 = 282 necklaces OR<br>35 × 6 = 210 rings OR<br>39 × 6 = 234 earrings | Award if 42 seen<br>Award if 282 or 210 or 234 seen | PS | 29a |
| | Identify bestselling item | | **1 mark**: Necklace identified as bestselling item. | Do **not** allow FT for incorrect calculations.<br>Do not award if not supported by calculations | PS | 29a |
| **Question 18b** | Calculate range of bracelets sold | 2 | **1 mark**: Correct range calculated, eg<br>97 – 22 = 75 identified (maximum and minimum identified). | | PS | 29b |
| | Identify most consistent item | | **1 mark**: Rings identified as most consistent selling item. | Do not allow FT for incorrect calculations. | PS | 29b |
| **Question 18c** | Calculate fraction of amounts | 2 | **1 mark:** Method to calculate fraction of amounts eg<br>1592 ÷ 3 x 2 = (1,061.33…) OR<br>1 ÷ 3 x 1592 = (530.66…) | | PS | 9 |
| | | | **1 mark:** Correct answer = (£)1061.33 | Allow 1061.34<br>Only allow 2 decimal places. | PS | 9 |

**Annotation notes:**

| Annotation | Meaning |
|---|---|
| US | Underpinning skills |
| PS | Problem solving skills |
| FT | Follow through |
| (…) | Information that is not required for the mark point |

## Functional Skills in Mathematics Level 1 – Mapping matrix

| Paper number (Sample Assessment Material) | RFSML1SAM01 | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Task number** | **T1** | | **T2** | | **T3** | | **T4** | | **Total** | **%** |
| **Total number of marks per task** | **15** | | **15** | | **15** | | **15** | | | |
| **Problem Solving (PS) maximum marks**<br>**Underpinning skills (US) maximum marks** | **9**<br>**6** | | **12**<br>**3** | | **12**<br>**3** | | **12**<br>**3** | | **Total no of sub-elements mapped = 33** | |
| Tick the boxes to confirm that T2, T3 and T4 contain a 4 – 7 mark question reflecting no more than a one-step process or no more than one connected-step process. | | | ✓ | | ✓ | | ✓ | | | |
| **Level 1 Subject Content** | **PS** | **US** | **PS** | **US** | **PS** | **US** | **PS** | **US** | | |
| 1a. Read and write large numbers (up to one million) | | | | | | 1(Q12) | | | 1 | |
| 1b. Order and compare large numbers (up to one million) | | | | | | | | | | |
| 2. Use both positive and negative numbers | | | | | 3(Q15a) | | | | 3 | |
| 3a. Multiply whole numbers and decimals by 10, 100, 1000 | | | | | | | | | | |
| 3b. Divide whole numbers and decimals by 10, 100, 1000 | | 1(Q5) | | | | | | | 1 | |
| 4. Use multiplication facts and make connections with division facts | | | | | | | | | | |
| 5. Use simple formulae expressed in words for one or two-step operations | 3(Q6a) | | | | | | | | 3 | |
| 6. Calculate the squares of one-digit and two-digit numbers | | 1(Q2) | | | | | | | 1 | |
| 7. Follow the order of precedence of operators | | | | | | | | | | |
| 8a. Read and write common fractions and mixed numbers | | | | | | | | | | |
| 8b. Order and compare common fractions and mixed numbers | | | | | | | | | | |
| 9. Find fractions of whole number quantities or measurements | | | | | | | 2(Q18c) | | 2 | |
| 10. Read and write, order and compare decimals up to three decimal places | | | | | | 1(Q13) | | | 1 | |
| 11a. Add decimals with decimals up to two decimal places | | 1(Q4) | | | | | | | 1 | |
| 11b. Subtract decimals with decimals up to two decimal | | | | | 2(Q15e) | | | | 2 | |

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|---|---|---|---|---|---|---|---|---|---|---|
| places | | | | | | | | | | |
| 11c. Multiply decimals with decimals up to two decimal places | | | | | | | | | | |
| 11d. Divide decimals with decimals up to two decimal places | | | | | | | | | | |
| 12a. Approximate by rounding to a whole number | 1(Q6a) | | 1(Q11d) | | 1(15c) | | | | 3 | |
| 12b. Approximate by rounding to one or two decimal places | | | | 1(Q10) | | | | | 1 | |
| 13a. Read and write percentages in whole numbers | | | | | | | | | | |
| 13b. Order and compare percentages in whole numbers | | | | | | | | | | |
| 14. Calculate percentages of quantities, including simple percentage increases and decreases by 5% and multiples thereof | | | | | 3(Q15d) | | | | 3 | |
| 15. Estimate answers to calculations using fractions and decimals | | | | | | | | | | |
| 16a. Recognise equivalences between common fractions, percentages and decimals | | | 1(Q11a) | | | | | | 1 | |
| 16b. Calculate equivalences between common fractions, percentages and decimals | | | | 1(Q9) | | | | | 1 | |
| 17a. Work with simple ratio | | 1(Q3) | | | | | | | 1 | |
| 17b. Work with direct proportions | | | 1(Q11a) | | | | | | 1 | |
| **Total: Number and number system** | | | | | | | | | **26** | |
| 18. Calculate simple interest in multiples of 5% on amounts of money | | | | | | | | | | |
| 19. Calculate discounts in multiples of 5% on amounts of money | | | 3(Q11c) | | | | | | 3 | |
| 20a. Convert between units of length in the same system | | | | | 1(Q15c) | | | | 1 | |
| 20b. Convert between units of weight in the same system | | | 2(Q11a) | | | | | | 2 | |
| 20c. Convert between units of capacity in the same system | 2(Q6b) | | | | | | | | 2 | |
| 20d. Convert between units of money in the same system | | | 1(Q11c) | | | | | | 1 | |
| 20e. Convert between units of time in the same system | | | 3(Q11b) | | | | | | 3 | |
| 21. Recognise and make use of simple scales on maps and drawings | 2(Q6c) | | | | | | | | 2 | |

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|---|---|---|---|---|---|---|---|---|---|---|
| 22a. Calculate the area of simple shapes including those that are made up of a combination of rectangles | 1(Q7) | | | | | | | | 1 | |
| 22b. Calculate the perimeter of simple shapes including those that are made up of a combination of rectangles | | 2(Q1) | | | 1(Q15c) | | | | 3 | |
| 23. Calculate the volumes of cubes and cuboids | | | | | | | 4(Q17b) | | 4 | |
| 24a. Draw 2-D shapes and demonstrate an understanding of line symmetry | | | | | | | | | | |
| 24b. Understand the relative size of angles | | | | | | | | | | |
| 25a. Interpret plans and elevations of simple 3-D shapes | | | | | | | | | | |
| 25b. Interpret nets of simple 3-D shapes | | | | | | | 2(Q17a) | | 2 | |
| 26a. Use angles when describing position and direction | | | | | | | | | | |
| 26b. Measure angles in degrees | | | | | | | | | | |
| **Total: Measure, shape and space** | | | | | | | | | **24** | |
| 27a. Represent discrete data in tables and diagrams | | | | | | | | | | |
| 27b. Represent discrete data in charts i) pie charts, ii) bar charts and iii) line graphs | | | | | | | | 3(Q16) | 3 | |
| 28a. Group discrete data | | | | | | 1(Q14) | | | 1 | |
| 28b. Represent grouped data graphically | | | | | | | | | | |
| 29a. Find the mean of a set of quantities | | | | | | | 2(Q18a) | | 2 | |
| 29b. Find the range of a set of quantities | | | | | | | 2(Q18b) | | 2 | |
| 30. Understand probability on a scale from 0 (impossible) to 1 (certain) and use probabilities to compare the likelihood of events | | | | | 1(Q15b) | | | | 1 | |
| 31. Use equally likely outcomes to find the probabilities of simple events and express them as fractions | | | | 1(Q8) | | | | | 1 | |
| **Total: Handling data** | | | | | | | | | **10** | |
| **Total Mark PS/US Total %** | 9 | 6 | 12 | 3 | 12 | 3 | 12 | 3 | 60 | 100 |

| Problem solving and decision-making requirements. Indicate the question numbers where this is required | Task 1 | | Task 2 | | Task 3 | | Task 4 | | |
|---|---|---|---|---|---|---|---|---|---|
| Read, understand, and use mathematical information and mathematical terms | 6a, 6b 6c | | 11a, 11b, 11c, 11d | | 15a, 15b, 15c, 15d | | 17a, 17b, 18a, 18b, 18c | | |
| Address individual problems based on a combination of the knowledge and/or skills from the mathematical content areas (number and the number system; measures, shape and space; information and data). Some problems draw upon a combination of any two of the mathematical content areas and require learners to make connections between those content areas. | 6a, 7 | | 11a, 11b, 11c, 11d | | 15c | | 17b | | |
| Use mathematical information and terms in a problem | 6a, 6b, 6c | | 11a, 11b, 11c, 11d | | 15a, 15b, 15c, 15d | | 17b, 18a, 18b | | |
| Use knowledge and understanding to a required level of accuracy | 6a, 6b, 6c, 7 | | 11a, 11b, 11c, 11d | | 15a, 15b, 15c, 15d | | 17b, 18a, 18b | | |
| Identify suitable operations and calculations to generate results | 6a, 6b, 6c, 7 | | 11a, 11b, 11c, 11d | | 15c, 15d | | 17a, 17b, 18a, 18b | | |
| Analyse and interpret answers in the context of the original problem | | | | | 15b, 15c, 15d | | 17a, 17b, 18a, 18b | | |
| Check the sense and reasonableness of answers | 6b | | 11d | | 15c, 15d | | 17a, 17b | | |
| Present results with appropriate explanation and interpretation demonstrating simple reasoning to support the process and show consistency with the evidence presented. | | | | | | | 17b, 18b, 18c | | |