







# Valentine's Day L1 Functional Maths

Name \_\_\_\_\_ Date \_\_\_\_\_






**DO NOT USE A CALCULATOR. You must show your working out.**

<p>1. A shop buys 756 roses for Valentine's day. <math>\frac{2}{3}</math> are sprayed purple. The rest are red.  <b>How many are red? How many are purple?</b></p> <p><b>Show a check of your answer:</b></p>	
<p>2. The same shop is offering a 15% Valentine's discount on all bouquets priced at £40 or above.  <b>What is the cost of a bouquet that is normally £56?</b></p>	
<p>3. <b>What is the volume of this cuboid box of chocolates?</b>  The two ends of the box are 5cm squares.</p> <p>12cm</p> <p>5cm</p> 	
<p>4. Mrs Love puts bunting around the walls of her restaurant. The restaurant is a 12m x 10m rectangle.  <b>What is the perimeter of the restaurant?</b></p> <p><b>Show a check of your answer:</b></p>	
<p>5. A meal at Mrs Love's usually costs £27.66. <math>\frac{1}{3}</math> is added to this price for Valentine's Day.  <b>How much does the Valentine's meal cost now?</b></p>	

# Valentine's Day L1 Functional Maths

Name \_\_\_\_\_ Date \_\_\_\_\_

**DO NOT USE A CALCULATOR. You must show your working out.**

<p>6. Red carpet tiles need to go on the dance floor for the valentine's dance. The floor has a length of 9m and a width of 8m. <b>What is the area of the dance floor?</b></p>											
<p>7. <u>Use information from Q6 above</u> Each tile is 25cm by 25cm. <b>How many tiles do you need for the dance floor?</b></p>											
<p>8. Joe buys flowers for £26.50. He wants them to be delivered to his wife. There is a delivery charge of 35p a mile. The van will travel 17 miles. <b>What is the total cost Joe paid?</b></p>											
<p>9. 25 people are going to a Valentine's party. Each person will get 3 glasses of punch. A glass holds 240ml. <b>How many millilitres is this for 25 people? How many litres is this?</b></p>											
<p>10. Marcel makes cookies. The recipe makes 8 cookies but he wants to make 12. <b>Re-write the recipe for Marcel.</b></p> <table border="1" data-bbox="161 1816 807 2051"> <tbody> <tr> <td>70g butter</td><td></td></tr> <tr> <td>30g sugar</td><td></td></tr> <tr> <td>90g flour</td><td></td></tr> <tr> <td>½ tsp cinnamon</td><td></td></tr> <tr> <td>50g chocolate</td><td></td></tr> </tbody> </table>	70g butter		30g sugar		90g flour		½ tsp cinnamon		50g chocolate		
70g butter											
30g sugar											
90g flour											
½ tsp cinnamon											
50g chocolate											

### Subject content – Reformed FUNCTIONAL SKILLS MATHEMATICS

Effective from September 2019

✓ indicates main **content** and **problem-solving skill(s)** covered in this resource, although these will vary with the student group and how the resource is used by the teacher. Full content at:

DfE (Feb 2018) <https://www.gov.uk/government/publications/functional-skills-subject-content-mathematics>

**1. Fundamental mathematical knowledge and skills** These must be demonstrated in their own right, **both with and without a calculator**, in addition to being used to solve problems or complete tasks.

#### Level 1

##### Using numbers and the number system (NS)

L1.1 Read, write, order and compare large numbers (up to one million)  
 L1.2 Recognise and use positive and negative numbers  
 L1.3 Multiply and divide whole numbers and decimals by 10, 100, 1000  
 L1.4 Use multiplication facts and make connections with division facts  
 L1.5 Use simple formulae expressed in words for one or two-step operations ✓ Q8  
 L1.6 Calculate the squares of one-digit & two-digit numbers  
 L1.7 Follow order of precedence of operators ✓ Q8  
 L1.8 Read, write, order and compare common fractions and mixed numbers

L1.9 Find fractions of whole number quantities or measurements ✓ Q1 Q5  
 L1.10 Read, write, order and compare decimals up to three decimal places  
 L1.11 Add, subtract, multiply and divide decimals up to 2 decimal places ✓ Q5 Q8 Q9  
 L1.12 Approximate by rounding to a whole number or to one or two decimal places  
 L1.13 Read, write, order and compare percentages in whole numbers  
 L1.14 Calculate percentages of quantities, including simple percentage increases / decreases by 5% and multiples thereof ✓ Q2  
 L1.15 Estimate answers to calculations using fractions and decimals  
 L1.16 Recognise and calculate equivalences between common fractions, percentages and decimals  
 L1.17 Work with simple ratio and direct proportions ✓ Q10

##### Using common measures, shape and space (MS)

L1.18 Calculate simple interest in multiples of 5% on amounts of money  
 L1.19 Calculate discounts in multiples of 5% on amounts of money  
 L1.20 Convert between units of length, weight, capacity, money and time, in the same system ✓ Q7 Q9  
 L1.21 Recognise and make use of simple scales on maps and drawings  
 L1.22 Calculate area and perimeter of simple shapes including those that are made up of a combination of rectangles ✓ Q4 Q6 Q7  
 L1.23 Calculate the volumes of cubes and cuboids ✓ Q3  
 L1.24 Draw 2-D shapes and demonstrate an understanding of line symmetry & knowledge of the relative size of angles ✓ Q7  
 L1.25 Interpret plans, elevations and nets of simple 3-D shapes  
 L1.26 Use angles when describing position and direction, and measure angles in degrees

##### Handling information and data (HD)

L1.27 Represent discrete data in tables, diagrams and charts inc. pie charts, bar charts, line graphs  
 L1.28 Group discrete data and represent grouped data graphically  
 L1.29 Find the mean and range of a set of quantities  
 L1.30 Understand probability on a scale from 0 (impossible) to 1 (certain) and use probabilities to compare the likelihood of events  
 L1.31 Use equally likely outcomes to find the probabilities of simple events and express them as fractions

### 2. Solving mathematical problems, carrying out tasks and decision making (PS)

#### Level 1 students are expected to be able to:

Use the content knowledge and skills to recognise and obtain a solution or solutions to a:

<sup>2</sup>**straightforward problem.** ✓

L1a. L2a. Read, understand and use mathematical information and mathematical terms used at this level ✓

L1b. L2b. Address individual problems as described above ✓

L1c. L2c. Use knowledge and understanding to a required level of accuracy ✓

L1d. L2e. Analyse and interpret answers in the context of the original problem ✓

L2d. Identify suitable operations and calculations to generate results

L1e. L2f. Check the sense, and reasonableness, of answers ✓

L1f. Present results with appropriate explanation and interpretation demonstrating simple reasoning to support the process & show consistency with the evidence presented ✓

L2g. Present results and explain results clearly and accurately demonstrating reasoning to support the process and show consistency with the evidence presented

#### Level 2 students are expected to be able to:

<sup>3</sup>**complex problem.**

# Valentine's Day L1 Reformed Functional Maths

## Curriculum mapping and answers



KEY: MCA = appropriate mathematical content area(s). NS = Using numbers and the number system. MS = Using common measures, shape and space. HD = Handling information and data.

<sup>1</sup>A **simple mathematical problem** requires **working through one step or process**. At Entry Level it is expected that students will be able to address individual problems each of which draw upon knowledge and/or skills from **one MCA** (NS, MS or HD). **Context** should be familiar to all students and easily described.

<sup>2</sup>A **straightforward problem** requires students to either work through one step or process **or to work through more than one connected step or process**. Individual problems are based on the knowledge and/or skills in the MCA (i.e. NS, MS or HD). At Level 1 it is expected that the student will be able to address individual problems, some of which **draw upon a combination of any two of the MCA** and require students to make connections between those content areas. **The context** of individual problems at L1 will require some comprehension in order for the student to be able independently to identify and carry out an appropriate mathematical approach.

<sup>3</sup>A **complex problem** requires a **multi-step process, typically requiring planning and working through at least two connected steps or processes**. Individual problems are based on a combination of the knowledge and/or skills from the MCA (NS, MS or HD). At Level 2 it is expected that the student will be able to address individual problems some of which draw upon a combination of **all three MCA** and require students to make connections between those content areas. **The context** of individual problems at L2 will require interpretation and analysis in order for the student to be able independently to identify and carry out an appropriate mathematical process or processes.

### Mathematical problem solving (at all levels of Functional Mathematics)

Although underpinning knowledge is tested in its own right, problem solving is a core element of Functional Skills mathematics yet should not obscure or add additional mathematical complexity beyond the level of the qualification. Defining problem solving is a challenge but the attributes below may help. Not all (often just one) of the listed attributes must be present in a single task for it to be considered to be problem solving. ✓ indicates why all or parts of this resource can be considered to be problem solving.

One or more of the following attributes may be present in a single task for it to be considered problem solving.

<b>A</b> Tasks that have little or no scaffolding: there is little guidance given to the student beyond a start point and a finish point. Questions do not explicitly state the mathematical process(es) required for the solution. <b>Most questions</b>	✓
<b>B</b> Tasks that provide for multiple representations, such as use of a sketch or a diagram as well as calculations. <b>Q4 Q6 Q7</b>	✓
<b>C</b> The information is not given in mathematical form or in mathematical language; or there is a need for the results to be interpreted or methods evaluated, for example, in a real-world context. <b>Q7 Q8 Q10</b>	✓
<b>D</b> Tasks have a variety of techniques that could be used. <b>Q2 Q7 Q9</b>	✓
<b>E</b> The solution requires understanding of the processes involved rather than just application of the techniques. <b>Q7 Q8 Q9 Q10</b>	✓

**Answers:** Methods shown are examples only, accept any suitable non-calculator methods and checks. Checks can be reverse calculations, estimation or using a different method. Do not accept 'Use a calculator to check'.

1.  $756/3 = 252$ .  $2 \times 252 = 504$ . **252 are red, 504 purple.**

Any suitable check(s), e.g.  $252 \times 3 = 756$ ,  $504/2 = 252$ .

2. 10% of £56 = £5.60 so  $\%5 = 5.60/2 = £2.80$ .  $15\% = 10\% + 5\% = £5.60 + £2.80 = £8.40$  £56.00 - £8.40 = **£47.60**

3.  $5 \text{ cm} \times 5 \text{ cm} = 25 \text{ cm}^2$ .  $25 \times 12 = \mathbf{300 \text{ cm}^3}$

4.  $12 \text{ m} \times 2 = 24 \text{ m}$ .  $10 \text{ m} \times 2 = 20 \text{ m}$ .  $24 + 20 = \mathbf{44 \text{ m}}$ .

Any suitable check(s), e.g.  $44 - 20 = 24$ .  $24/2 = 12$ .

5.  $£27.66/3 = £9.22$ .  $£27.66 + £9.22 = \mathbf{£36.88}$

6.  $9 \text{ m} \times 8 \text{ m} = \mathbf{72 \text{ m}^2}$

7.  $4 \times 25 \text{ cm tiles per metre}$ .  $9 \times 4 = 36$   $8 \times 4 = 32$  so floor is 36 tiles long and 32 tiles wide.  $36 \times 32 = \mathbf{1152 \text{ tiles}}$ .

OR: 16 tiles (4 x 4) for each square metre. You know the area is  $72 \text{ m}^2$  (allow follow-through).  $72 \times 16 = \mathbf{1152}$ .

8.  $26.50 + (17 \times 0.35) = 26.50 + 5.95 = \mathbf{£32.45}$

9.  $240 \times 3 \times 25 = 240 \times 75 = \mathbf{18,000 \text{ ml} = 18 \text{ litres}}$

10.  $70 + 35 = \mathbf{105 \text{ g butter}}$ ,  $30 + 15 = \mathbf{45 \text{ g sugar}}$ ,  $90 + 45 = \mathbf{135 \text{ g flour}}$ ,  $\frac{1}{2} + \frac{1}{4} = \frac{3}{4} \text{ tsp cinnamon}$ ,  $50 + 25 = \mathbf{75 \text{ g chocolate}}$