



Open Awards Functional Skills Maths Level 2 Mock exams - How we created these papers

Overview

We have created 5 mock exam papers for Functional skills mathematics Level 2, with mark weighting and topic coverage based on the [Open Awards Sample Paper](#) provided on the open awards website, along with the points specified in the [Open Awards Functional skills mathematics qualification guide](#).

Each physical paper has been designed to look like the Open Awards paper based exams, with the mark schemes formatted and broken down to match the Open Awards style as well.

Tasks and Marks

Firstly, we have sectioned our mock papers into 4 tasks across 2 sections. Across these 4 tasks we have aimed to cover as many of the 28 Scope of Study (SoS) points as possible from the subject content section. Furthermore, the marks for each task are broken down into the following:

- **Section A** - Task 1: 9 marks for problem solving, 6 marks for underpinning skills - Non-calculator
Including at least two 1 mark questions, at least two 2 mark questions, at least two 3 or 4 mark questions, with no 5-8 mark questions included in Task 1.
- **Section B** - Tasks 2, 3 and 4: 12 marks for problem solving, 3 marks for underpinning skills - Calculator
Including at least one 1 mark question. The remaining questions within each task are a mixture of 2, 3, 4 and 5-8 mark questions distributed accordingly.

Across each paper, we have aimed to have a similar coverage of 1, 2, 3, 4 and 5-8 mark questions of that on the Open Awards sample paper:

- 1 mark - 5-7 questions
- 2 mark - 5-7 questions
- 3 mark - 3-5 questions
- 4 mark - 2-4 questions
- 5-8 mark - at least 3 questions, with at least one 5-8 mark question in each of Task 2, Task 3 and Task 4, each a multi-step calculation.

For some tasks, we have tried to incorporate some neighbouring questions in which their scenarios relate to each other, similar to what is seen on the Open Awards sample paper. However, there are no follow-on questions in the mathematical sense, i.e. we have made sure that the student sitting the paper will not need to know the answer to the previous question to answer the current question.

Distribution of Topics and Skills

In each of the papers the distribution of the marks assigned to each of the three main topic areas have been allocated to match Open Awards exams. Approximately 40% of the total marks are marks coming from topics in Numbers and the Number System, 40% from Measures, Shape and Space and 20% from Handling Information and Data.

Further, we have aimed to have a fair coverage of questions involving the different attributes that may be present to determine the presence of problem solving, labelled A-F:

A. Tasks that have little or no scaffolding: there is little guidance given to the learner beyond a start point and a finish point. Questions do not explicitly state the mathematical process (es) required for the solution.

B. Tasks that provide for multiple representations, such as the use of a sketch or a diagram as well as calculations.

C. 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.

D. Tasks have a variety of techniques that could be used.

E. The solution requires understanding of the processes involved rather than just application of the techniques.

F. The task requires two or more mathematical processes or may require different parts of mathematics to be brought together to reach a solution.

With the higher mark questions included in each paper designed to test the learner's ability to:

- Read, understand, and use mathematical information and mathematical terms;
- Address individual problems;
- Use knowledge and understanding to a required level of accuracy;
- Identify suitable operations and calculations to generate results;
- Analyse and interpret answers in the context of the original problem;
- Check the sense and reasonableness of answers;
- Present and explain results clearly and accurately demonstrating reasoning to support the process and show consistency with the evidence presented.

Assessment Difficulty

Each of the 5 papers have been designed to match the difficulty of an Open Awards Functional Skills Maths Level 2 assessment, based on a pass mark of 50%-60%.

Question Breakdown

For each of our 5 papers, we have shown the breakdown of topics and marks for all questions and tasks in the paper, below, similar to what is seen in the Open Awards Sample paper.

Paper 1:

P = problem solving

U = underpinning skills

Task	Task 1		Task 2		Task 3		Task 4		Total
Total marks per task	15		15		15		15		60
Problem solving (P) marks	9		12		12		12		45
Underpinning skills (U) marks	6		3		3		3		15
Level 2 subject content	P	U	P	U	P	U	P	U	-
SoS1. Read, write, order and compare positive and negative numbers of any size									0
SoS2. Carry out calculations with numbers up to one million including strategies to check answers including estimation and approximation	2 (Q6)	1 (Q2)			1 (Q17)				4
SoS3. Evaluate expressions and make substitutions in given formulae in words and symbols							2 (Q20)		2
SoS4. Identify and know the equivalence between fractions, decimals and percentages									0
SoS5. Work out percentages of amounts and express one amount as a percentage of another									0
SoS6. Calculate percentage change (any size increase and decrease), and original value after percentage change					3 (Q15)				3
SoS7. Order, add, subtract and compare amounts or quantities using proper and improper fractions and mixed numbers		2 (Q3)							2
SoS8. Express one number as a fraction of another				2 (Q11)					2
SoS9. Order, approximate and compare decimals		1 (Q1)							1
SoS10. Add, subtract, multiply and divide decimals up to three decimal places							3 (Q22)		3
SoS11. Understand and calculate using ratios, direct proportion and inverse proportion	3 (Q5) 2 (Q6)								5
SoS12. Follow the order of precedence of operators, including indices									0
Numbers and the Number system: Total Marks									22
SoS13. Calculate amounts of money, compound interest, percentage increases, decreases and discounts including tax and simple budgeting					2 (Q17)				2
SoS14. Convert between metric and imperial units of length, weight and capacity using a) a conversion factor					1 (Q17)	1 (Q16)	2 (Q22)		4

b) a conversion graph									
SoS15. Calculate using compound measures including speed, density and rates of pay			5 (Q12)		2 (Q13)				7
SoS16. Calculate perimeters and areas of 2-D shapes including triangles and circles and composite shapes including non-rectangular shapes (formulae given except for triangles and circles)			4 (Q8)		1 (Q17)	1 (Q16)			6
SoS17. Use formulae to find volumes and surface areas of 3-D shapes including cylinders (formulae to be given for 3-D shapes other than cylinders)					2 (Q13)				2
SoS18. Calculate actual dimensions from scale drawings and create a scale diagram given actual measurements							1 (Q22)		1
SoS19. Use coordinates in 2-D, positive and negative, to specify the positions of points				1 (Q10)					1
SoS20. Understand and use common 2-D representations of 3-D objects									0
SoS21. Draw 3-D shapes to include plans and elevations						1 (Q14)			1
SoS22. Calculate values of angles and/or coordinates with 2-D and 3-D shapes							2 (Q21)		2
Measures, Shape and Space: Total Marks									26
SoS23. Calculate the median and mode of a set of quantities		2 (Q4)							2
SoS24. Estimate the mean of a grouped frequency distribution from discrete data			3 (Q9)						3
SoS25. Use the mean, median, mode and range to compare two sets of data							4 (Q19)		4
SoS26. Work out the probability of combined events including the use of diagrams and tables, including two-way tables									0
SoS27. Express probabilities as fractions, decimals and percentages	2 (Q7)								2
SoS28. Draw and interpret scatter diagrams and recognise positive and negative correlation								1 (Q18)	1
Handling Information and Data: Total Marks									12

Paper 2:**P = problem solving****U = underpinning skills**

Task	Task 1		Task 2		Task 3		Task 4		Total
Total marks per task	15		15		15		15		60
Problem solving (P) marks	9		12		12		12		45
Underpinning skills (U) marks	6		3		3		3		15
Level 2 subject content	P	U	P	U	P	U	P	U	-
SoS1. Read, write, order and compare positive and negative numbers of any size		1(Q1)							1
SoS2. Carry out calculations with numbers up to one million including strategies to check answers including estimation and approximation		1(Q3)							1
SoS3. Evaluate expressions and make substitutions in given formulae in words and symbols			2(Q11)						2
SoS4. Identify and know the equivalence between fractions, decimals and percentages	1(Q5)								1
SoS5. Work out percentages of amounts and express one amount as a percentage of another			1(Q11)						1
SoS6. Calculate percentage change (any size increase and decrease), and original value after percentage change			1(Q11)						1
SoS7. Order, add, subtract and compare amounts or quantities using proper and improper fractions and mixed numbers	2(Q5)								2
SoS8. Express one number as a fraction of another							3(Q21)		3
SoS9. Order, approximate and compare decimals									0
SoS10. Add, subtract, multiply and divide decimals up to three decimal places		1(Q7)							1
SoS11. Understand and calculate using ratios, direct proportion and inverse proportion					3(Q17)				3
SoS12. Follow the order of precedence of operators, including indices		2(Q4)							2
Numbers and the Number system: Total Marks									18
SoS13. Calculate amounts of money, compound interest, percentage increases, decreases and discounts including tax and simple budgeting		1(Q2)	2(Q12)				3(Q22)		6
SoS14. Convert between metric and imperial units of length, weight and capacity using a) a conversion factor b) a conversion graph								1(Q19)	1
SoS15. Calculate using compound measures including speed, density and rates of pay	3(Q6)					2(Q14)			5
SoS16. Calculate perimeters and areas of 2-D shapes including triangles and circles and composite shapes including non-rectangular shapes (formulae given except									0

for triangles and circles)									
SoS17. Use formulae to find volumes and surface areas of 3-D shapes including cylinders (formulae to be given for 3-D shapes other than cylinders)			1(Q12)						1
SoS18. Calculate actual dimensions from scale drawings and create a scale diagram given actual measurements				2(Q9) 1(Q10)					3
SoS19. Use coordinates in 2-D, positive and negative, to specify the positions of points			3(Q13)						3
SoS20. Understand and use common 2-D representations of 3-D objects			2(Q12)						2
SoS21. Draw 3-D shapes to include plans and elevations									0
SoS22. Calculate values of angles and/or coordinates with 2-D and 3-D shapes	3(Q8)								3
Measures, Shape and Space: Total Marks									24
SoS23. Calculate the median and mode of a set of quantities								2(Q20)	2
SoS24. Estimate the mean of a grouped frequency distribution from discrete data							3(Q23)		3
SoS25. Use the mean, median, mode and range to compare two sets of data					5(Q15)				5
SoS26. Work out the probability of combined events including the use of diagrams and tables, including two-way tables					4(Q18)				4
SoS27. Express probabilities as fractions, decimals and percentages						1(Q16)			1
SoS28. Draw and interpret scatter diagrams and recognise positive and negative correlation							3(Q23)		3
Handling Information and Data: Total Marks									18

Paper 3:**P = problem solving****U = underpinning skills**

Task	Task 1		Task 2		Task 3		Task 4		Total
Total marks per task	15		15		15		15		60
Problem solving (P) marks	9		12		12		12		45
Underpinning skills (U) marks	6		3		3		3		15
Level 2 subject content	P	U	P	U	P	U	P	U	-
SoS1. Read, write, order and compare positive and negative numbers of any size									0
SoS2. Carry out calculations with numbers up to one million including strategies to check answers including estimation and approximation	1(Q6) 1(Q7)				1(Q16)		1(Q22)		4
SoS3. Evaluate expressions and make substitutions in given formulae in words and symbols					1(Q17)			2(Q18)	3
SoS4. Identify and know the equivalence between fractions, decimals and percentages				1(Q8)					1
SoS5. Work out percentages of amounts and express one amount as a percentage of another	1(Q6)						2(Q22)		3
SoS6. Calculate percentage change (any size increase and decrease), and original value after percentage change			3(Q10)						3
SoS7. Order, add, subtract and compare amounts or quantities using proper and improper fractions and mixed numbers	1(Q7)	2(Q1)				2(Q14)			5
SoS8. Express one number as a fraction of another									0
SoS9. Order, approximate and compare decimals		1(Q2)							1
SoS10. Add, subtract, multiply and divide decimals up to three decimal places					1(Q16)				1
SoS11. Understand and calculate using ratios, direct proportion and inverse proportion					2(Q17)				2
SoS12. Follow the order of precedence of operators, including indices									0
Numbers and the Number system: Total Marks									23
SoS13. Calculate amounts of money, compound interest, percentage increases, decreases and discounts including tax and simple budgeting			5(Q12)		1(Q16)				6
SoS14. Convert between metric and imperial units of length, weight and capacity using a) a conversion factor b) a conversion graph	2(Q6)				1(Q15)				3
SoS15. Calculate using compound measures including speed, density and rates of pay					1(Q15)		5(Q21)		6
SoS16. Calculate perimeters and areas of 2-D shapes including triangles and circles and composite shapes including non-rectangular shapes (formulae given except				2(Q9)	3(Q16)				5

for triangles and circles)									
SoS17. Use formulae to find volumes and surface areas of 3-D shapes including cylinders (formulae to be given for 3-D shapes other than cylinders)					1(Q15)				1
SoS18. Calculate actual dimensions from scale drawings and create a scale diagram given actual measurements									0
SoS19. Use coordinates in 2-D, positive and negative, to specify the positions of points							1(Q19)		1
SoS20. Understand and use common 2-D representations of 3-D objects						1(Q13)			1
SoS21. Draw 3-D shapes to include plans and elevations									0
SoS22. Calculate values of angles and/or coordinates with 2-D and 3-D shapes		1(Q3)							1
Measures, Shape and Space: Total Marks									24
SoS23. Calculate the median and mode of a set of quantities		2(Q4)							2
SoS24. Estimate the mean of a grouped frequency distribution from discrete data			4(Q11)						4
SoS25. Use the mean, median, mode and range to compare two sets of data									0
SoS26. Work out the probability of combined events including the use of diagrams and tables, including two-way tables	2(Q5)								2
SoS27. Express probabilities as fractions, decimals and percentages	1(Q5)								1
SoS28. Draw and interpret scatter diagrams and recognise positive and negative correlation							4(Q20)		4
Handling Information and Data: Total Marks									13

Paper 4:

P = problem solving

U = underpinning skills

Task	Task 1		Task 2		Task 3		Task 4		Total
Total marks per task	15		15		15		15		60
Problem solving (P) marks	9		12		12		12		45
Underpinning skills (U) marks	6		3		3		3		15
Level 2 subject content	P	U	P	U	P	U	P	U	-
SoS1. Read, write, order and compare positive and negative numbers of any size									0
SoS2. Carry out calculations with numbers up to one million including strategies to check answers including estimation and approximation		1(Q2)							1
SoS3. Evaluate expressions and make substitutions in given formulae in words and symbols					3(Q17)				3
SoS4. Identify and know the equivalence between fractions, decimals and percentages	1(Q5)								1
SoS5. Work out percentages of amounts and express one amount as a percentage of another									0
SoS6. Calculate percentage change (any size increase and decrease), and original value after percentage change					1(Q17)		2(Q22)		3
SoS7. Order, add, subtract and compare amounts or quantities using proper and improper fractions and mixed numbers	3(Q7)								3
SoS8. Express one number as a fraction of another	1(Q5)								1
SoS9. Order, approximate and compare decimals		1(Q3)							1
SoS10. Add, subtract, multiply and divide decimals up to three decimal places								1(Q18)	1
SoS11. Understand and calculate using ratios, direct proportion and inverse proportion					3(Q16)				3
SoS12. Follow the order of precedence of operators, including indices		2(Q1)							2
Numbers and the Number system: Total Marks									19
SoS13. Calculate amounts of money, compound interest, percentage increases, decreases and discounts including tax and simple budgeting			3(Q12)		5(Q15)				8
SoS14. Convert between metric and imperial units of length, weight and capacity using a) a conversion factor b) a conversion graph	1(Q6)		2(Q11)						3
SoS15. Calculate using compound measures including speed, density and rates of pay	2(Q6)		3(Q11)						5
SoS16. Calculate perimeters and areas of 2-D shapes including triangles and circles and composite shapes including non-rectangular shapes (formulae given except	1(Q6)	2(Q4)							3

for triangles and circles)									
SoS17. Use formulae to find volumes and surface areas of 3-D shapes including cylinders (formulae to be given for 3-D shapes other than cylinders)			2(Q10)						2
SoS18. Calculate actual dimensions from scale drawings and create a scale diagram given actual measurements				1(Q8)					1
SoS19. Use coordinates in 2-D, positive and negative, to specify the positions of points			1(Q10)						1
SoS20. Understand and use common 2-D representations of 3-D objects			1(Q10)						1
SoS21. Draw 3-D shapes to include plans and elevations				2(Q9)					2
SoS22. Calculate values of angles and/or coordinates with 2-D and 3-D shapes						2(Q14)			2
Measures, Shape and Space: Total Marks									28
SoS23. Calculate the median and mode of a set of quantities								2(Q19)	2
SoS24. Estimate the mean of a grouped frequency distribution from discrete data							3(Q22)		3
SoS25. Use the mean, median, mode and range to compare two sets of data									0
SoS26. Work out the probability of combined events including the use of diagrams and tables, including two-way tables							4(Q21)		4
SoS27. Express probabilities as fractions, decimals and percentages						1(Q13)			1
SoS28. Draw and interpret scatter diagrams and recognise positive and negative correlation							3(Q20)		3
Handling Information and Data: Total Marks									13

Paper 5:**P = problem solving****U = underpinning skills**

Task	Task 1		Task 2		Task 3		Task 4		Total
Total marks per task	15		15		15		15		60
Problem solving (P) marks	9		12		12		12		45
Underpinning skills (U) marks	6		3		3		3		15
Level 2 subject content	P	U	P	U	P	U	P	U	-
SoS1. Read, write, order and compare positive and negative numbers of any size									0
SoS2. Carry out calculations with numbers up to one million including strategies to check answers including estimation and approximation					1(Q16)				1
SoS3. Evaluate expressions and make substitutions in given formulae in words and symbols		2(Q4)							2
SoS4. Identify and know the equivalence between fractions, decimals and percentages					1(Q15)				1
SoS5. Work out percentages of amounts and express one amount as a percentage of another			1(Q12)		1(Q16)				2
SoS6. Calculate percentage change (any size increase and decrease), and original value after percentage change					2(Q17)				2
SoS7. Order, add, subtract and compare amounts or quantities using proper and improper fractions and mixed numbers		2(Q3)							2
SoS8. Express one number as a fraction of another								2(Q19)	2
SoS9. Order, approximate and compare decimals									0
SoS10. Add, subtract, multiply and divide decimals up to three decimal places	2(Q6)	1(Q1)					1(Q22)		4
SoS11. Understand and calculate using ratios, direct proportion and inverse proportion	2(Q5)		2(Q12)				2(Q20)		6
SoS12. Follow the order of precedence of operators, including indices		1(Q2)							1
Numbers and the Number system: Total Marks									23
SoS13. Calculate amounts of money, compound interest, percentage increases, decreases and discounts including tax and simple budgeting	1(Q6)		5(Q11) 1(Q12)		1(Q16)		1(Q20) 1(Q21)		10
SoS14. Convert between metric and imperial units of length, weight and capacity using a) a conversion factor b) a conversion graph			1(Q10)				2(Q21)		3
SoS15. Calculate using compound measures including speed, density and rates of pay			2(Q10)						2
SoS16. Calculate perimeters and areas of 2-D shapes including triangles and circles and composite shapes including non-rectangular shapes (formulae given except	1(Q6)						1(Q21)		2

for triangles and circles)									
SoS17. Use formulae to find volumes and surface areas of 3-D shapes including cylinders (formulae to be given for 3-D shapes other than cylinders)					2(Q16)				2
SoS18. Calculate actual dimensions from scale drawings and create a scale diagram given actual measurements							1(Q21)		1
SoS19. Use coordinates in 2-D, positive and negative, to specify the positions of points						1(Q13)			1
SoS20. Understand and use common 2-D representations of 3-D objects									0
SoS21. Draw 3-D shapes to include plans and elevations									0
SoS22. Calculate values of angles and/or coordinates with 2-D and 3-D shapes						2(Q14)			2
Measures, Shape and Space: Total Marks									23
SoS23. Calculate the median and mode of a set of quantities				1(Q8) 2(Q9)					3
SoS24. Estimate the mean of a grouped frequency distribution from discrete data	3(Q7)								3
SoS25. Use the mean, median, mode and range to compare two sets of data									0
SoS26. Work out the probability of combined events including the use of diagrams and tables, including two-way tables					3(Q15)		3(Q22)		6
SoS27. Express probabilities as fractions, decimals and percentages					1(Q15)				1
SoS28. Draw and interpret scatter diagrams and recognise positive and negative correlation								1(Q18)	1
Handling Information and Data: Total Marks									14