TQUK Functional Skills Qualification in Maths at Level 2

Mark Scheme (Past Paper 3)

Mark scheme information

This mark scheme is intended to support the valid and consistent marking of the examination paper identified above. This mark scheme includes:

- the total mark available for each question or sub-question
- the individual subject content coverage and mapping of each question or sub-question as well as coverage totals
- the marking process and considerations which could or should be followed
- the types of responses expected for each mark.

Information for the marker

- This mark scheme documents covers both Section A (Non-Calculator) and Section B (Calculator).
- All marking must be completed consistently and the mark scheme must be applied fairly.
- Markers should award full marks if the candidate deserves full marks.
- Working is always expected, and space is provided for candidates to show their working.
- Questions where marks are awarded for working will always state 'show your working' or similar statement.
- Markers should be prepared to award zero marks if the candidate's response is not worthy of credit according to the requirements of the mark scheme for that question.
- For paper-based assessment, individual marks awarded to the candidate should be annotated clearly on the candidate's script. Once calculated and checked, overall marks achieved by the candidate must be included in the relevant area of the examination front cover.

PASS MARK: 34

Glossary

Marking Term	Definition
ACO	Accept only the correct answer
FOL	Follow-through marks are applied when there are earlier mistakes in the method
UNIT	The unit must be included in final answer for the mark(s) to be given
ALL	Identifies that all separate points must be met in order to receive full marks
NUM	Confirms that only the number is required, not the specific unit, type or measure
OE	Or equivalent
Coverage Term	Definition
UN	Use of number and the number system
UCM	Use of common measures, shape and space
HID	Handle information and data
PS	The ability to apply mathematical thinking effectively to solve problems
UPS	The ability to do maths when not as part of a problem

Section A: Non-Calculator

Q	Total Marks	Marks	Answer/Examples	Further Considerations/Comments	PS/UPS	SC
1	1	1	0.288	ACO	UPS	UN10i
2	1	1	0.1776	ACO	UPS	UN10ii
3	2	1	$\frac{72}{200}$ (× 100)	OE probability for example 0.36 × 100 may be implied by their answer.	UPS	HID26
		1	36(%)	FOL their probability correctly converted to a percentage		HID27
4	2	1	39	ALL ACO	UPS	UN2ii
		1	78	ALL FOL the correct answer to their correctly rounded value × 2 Only accept: 79 from 39.5 × 2 78.9 from 39.45 × 2 78.906 from 39.453 × 2		
5	2	2	(£)11.40	**Award full marks if correct answer seen**	PS	UCM13
		1	95 × 0.12 or 11.4	OE method. May be implied by 83.6		
		1	(£)11.40	ACO Final answer needs to be 2dp		

Q	Total Marks	Marks	Answer/Examples	Further Considerations/Comments	PS/UPS	SC
6	2	2	0	**Award full marks if correct answer given**	UPS	UN12
		1	100 seen	Shows an understanding of BIDMAS. May be from 10^2 or 25×4		
		1	0	ACO		

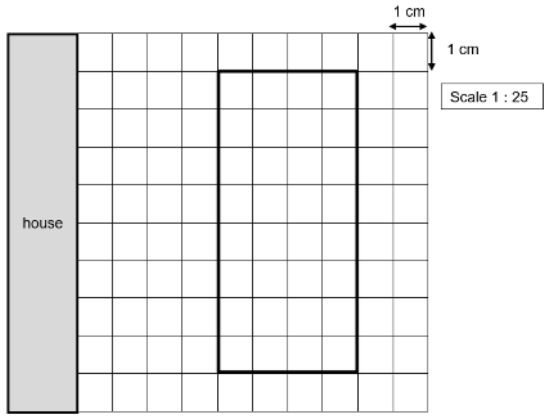
7	2	**2**	$9\frac{8}{15}$	**Award full marks if correct answer seen**	UPS	UN7ii
		Alternative method 1				
		1	$(5)\frac{5}{15}$ (+) $(4)\frac{3}{15}$ or $(9)\frac{8}{15}$	Finds a common denominator OE fraction		
		1	$9\frac{8}{15}$	ACO OE mixed number		
		Alternative method 2				
		1	$\frac{80}{15}$ (+) $\frac{63}{15}$ or $\frac{143}{15}$	Finds a common denominator OE fraction		
		1	or $9\frac{8}{15}$	ACO OE mixed number		

Q	Total Marks	Marks	Answer/Examples	Further Considerations/Comments	PS/UPS	SC
8	3	3	No AND 18 (mph) OR No AND 9 (days) OR No AND 4800 (miles in total) OR No AND 480 and 432 (miles in one day)	**Award full marks if correct answer and correct reason seen**	PS	
			Alternative method 1 – Comparing mph			UCM15i
		1	4320 ÷ 10 or 432 (miles per day)	OE method		
		1	4320 ÷ 10 ÷ 24 or 18 (mph)	OE method		
		1	No AND 18 (mph)	ACO Accept **No** AND any correct reason		
			Alternative method 2 – Comparing time taken			
		1	4320 ÷ 20 or 216 (hours)	OE method		
		1	4320 ÷ 20 ÷ 24 or 9 (days)	OE method		
		1	No AND 9 (days)	ACO Accept **No** AND any correct reason		
			Alternative method 3 – Comparing distance			
		1	24 × 20 or 480 (miles in one day) OR 10 × 20 or 200 (miles in 10 hours)	OE method		
		1	24 × 20 × 10 OR 10 × 20 × 24 OR 4320 ÷ 10 or 432 (miles in one day) OR 4800 (miles in total)	OE method		
		1	No AND 4800 (miles in total) OR No AND 480 and 432 (miles in one day)	ACO Accept **No** AND any correct reason		

Total: 15 marks

Section B: Calculator

Q	Marks in Total	Marks	Answer/Examples	Further Considerations/Comments	PS/UPS	SC
1	1	1	(Triangular) Prism	ACO Accept any recognisable spelling	UPS	UCM20
2	1	1	–102 560, –85 956, 1 025 600, 1 102 560	ACO	UPS	UN1
3	2	2	(0, 4) AND (0, 9) OR (10, 4) AND (10, 9)	**Award full marks if correct answer seen**	PS	
		1	(0, 4) or (0, 9) or (10, 4) or (10, 9)	At least one correct coordinate		UCM22ii
		1	(0, 4) AND (0, 9) OR (10, 4) AND (10, 9)	ACO Must be given as coordinates If both sets given all 4 must be correct		
4	2	2	45(°)	**Award full marks if correct answer seen**	UPS	UCM22i
		1	360 ÷ 8	OE method		
		1	45(°)	ACO		
5	2	1	0.725	ACO ALL	UPS	UN4
		1	72.5(%)	ACO ALL If zero scored, then award one mark special case if their decimal and percentage match each other		

Q	Marks in Total	Marks	Answer/Examples	Further Considerations/Comments	PS/UPS	SC
6	2	1	A rectangle drawn with **one of** the following: • Length 8 squares **or** width 4 squares • Positioned **at least** 4 squares away from the house	Accept any orientation Mark intention	PS	UCM18ii
		1	A rectangle drawn with length 8 squares, width 4 squares **and** positioned **at least** 4 squares away from the house	Mark intention		
		Example: 				

Q	Marks in Total	Marks	Answer/Examples	Further Considerations/Comments	PS/UPS	SC
7	3	3	Yes AND 1 007 110 OR Yes AND 181 610 AND 179 500 OR Yes AND 823 770(.4918)	**Award full marks if correct answer and correct reason seen**	PS	
		1	825 500 × 0.22 OR 825 500 × 1.22 OR 1 005 000 ÷ 1.22	OE method Calculations with numbers above one million not expected at Level 2 but award if seen		UN5i
		1	181 610 OR 1 007 110 OR 823 770(.4918)	ACO Implies 1st mark		UN5i
		1	Yes AND 1 007 110 OR Yes AND 181 610 AND 179 500 OR Yes AND 823 770(.4918)	Accept **Yes** AND any correct reason FOL the correct decision based on their values from a correct method for a percentage calculation 179 500 from 1 005 000 – 825 500 Calculations with numbers above one million not expected at Level 2 but award if seen		UN1

Q	Marks in Total	Marks	Answer/Examples	Further Considerations/Comments	PS/UPS	SC
8	3	3	Yes AND 13.3(764) (m) OR Yes AND 4.29(936…) (m) OR Yes AND 3.16(901…)	**Award full marks if correct answer and correct reason seen**	PS	
		1	3.14 × 4.26 OR 13.5 ÷ 3.14 OR 13.5 ÷ 4.26	OE method		UCM16ii
		1	13.3(764) (m) OR 4.29(936…) (m) OR 3.16(901…)	ACO Implies 1st mark		UCM16ii
		1	Yes AND 13.3(764) (m) OR Yes AND 4.29(936…) (m) OR Yes AND 3.16(901…)	Accept **Yes** AND any correct reason FOL their 13.3(764) correctly compared with 13.5 if 13 < their 13.3(764) < 14 FOL their 4.29(936…) correctly compared with 4.26 if 4 < their 4.29(936…) < 5 FOL their 3.16(901…) correctly compared with 3.14 if 3 < their 3.16(901…)< 4		UN9

Q	Marks in Total	Marks	Answer/Examples	Further Considerations/Comments	PS/UPS	SC
9	3	3	(£)28.75	**Award full marks if correct answer seen**	PS	UN6b
		1	690 ÷ 0.96	OE method		
		1	(£)718.75	ACO Implies 1st mark		
		1	(£)28.75	FOL the correct answer to their 718.75 – 690 if final answer given using correct money format i.e. 2dp if pence given in answer.		

10	3	3	No AND correct reason for example No AND $\frac{5}{12}$ OR No AND $\frac{200}{480}$ AND $\frac{280}{480}$	**Award full marks if correct answer and correct reason seen**	PS	
		1	$\frac{200}{275+200+5}$ OR $\frac{200}{480}$	OE fraction Accept e.g. 275 + 200 + 5 or 480		UN8
		1	$\frac{200}{480}$ AND $\frac{280}{480}$ OR $\frac{5}{12}$	OE fractions that allow a direct comparison $\frac{5}{12}$ implies 1st mark Accept e.g. 480 ÷ 12 × 7 or 280		
		1	No AND correct reason for example No AND $\frac{5}{12}$ OR No AND $\frac{200}{480}$ AND $\frac{280}{480}$	Accept **No** AND any correct reason Accept **No** AND 200 (g) and 280 (g)		

Q	Marks in Total	Marks	Answer/Examples	Further Considerations/Comments	PS/UPS	SC
11	4	4	1620 (cm^2)	**Award full marks if correct answer seen**	PS	
		1	$54 \times 28 + 32 \times 54$	OE method to find surface area		UCM17ii
		1	3240 (cm^2)	ACO Implies 1st mark		UCM17ii
		1	Their $3240 \div 10 \times 5$	OE method FOL their surface area		UN11i
		1	1620 (cm^2)	FOL the correct answer to their $3240 \div 10 \times 5$		UN11i

12	4	1	for example 8 km = 5 miles OR 40 km = 25 miles	Extracts any correct conversion from the graph	PS	UCM14ii
		1	for example $1600 \div 8 \times 5$ or 1000 (miles) OR $225 \div 5 \times 8$ or 360 (km)	OE method to convert 1600 km into miles or 200 miles into km		UCM14ii
		1	for example $(1600 \div 8 \times 5) \div 225$ or 4(.444 ….) (days) OR $1600 \div (225 \div 5 \times 8)$ or 4(.444 ….) (days)	OE method to work out how many days		UN11ii
		1	5 (days)	ACO		UN9

Q	Marks in Total	Marks	Answer/Examples	Further Considerations/Comments	PS/UPS	SC
13	4	1	80	ALL ACO Mean	PS	HID25
		1	36	ALL ACO Range		
		1	No AND correct reason, for example mean for lemon is higher AND 80 seen	OE comment comparing means FOL their 80 if their 80 is in the range [64, 100]		
		1	No AND correct reason, for example range for lemon is lower AND 36 seen	OE comment FOL their 36 if their 36 is a result of subtracting two numbers from the table		

14	5	5	No AND 3.5(168) (kg) OR No AND 3516.8 (grams) AND 3750 (grams)	**Award full marks if correct answer and correct reason seen**	PS	
		1	$3.14 \times 20 \times 20 \times 80$	OE method		UCM17i
		1	100 480 (cm^3)	ACO Implies 1st mark		UCM17i
		1	Their 100 480 ÷ 1000 × 35	OE method to substitute their volume into the formula Their volume must come from multiplying at least 3 values together		UN3i
		1	3516.8 (grams)	ACO Implies first 3 marks Award if 3.5168 (kg) seen		UN3i
		1	No AND 3.5(168) (kg) OR No AND 3516.8 (grams) AND 3750 (grams)	Accept **No** AND any correct reason FOL their 3.5(168) correctly compared with 3.75 if 3 < their 3.5(168) < 4		UN9

Q	Marks in Total	Marks	Answer/Examples	Further Considerations/Comments	PS/UPS	SC
15	6	1	$\frac{(4+7)5}{2}$	OE method to substitute dimensions into formula	PS	UN3ii
		1	27.5 (m^2)	ACO Area Implies 1st mark		UCM16i
		1	75, 85, 100, 130 … OR 150, 135, 130, 100 … OR (100 + 130) ÷ 2	OE method to work out median		HID23i
		1	(£)115	ACO median Implies 3rd mark		HID23i
		1	Their 27.5 × their 115 or 3162.5	OE method to work out total cost FOL their 27.5 from correctly substituting dimensions into formula FOL their 115 if in the range [75, 150] Allow for example 27 × their 115 or 28 × their 115 from rounding or truncating to a whole number of m^2		UCM15iii
		1	(£)3162.50	FOL the correct answer to their 27.5 × their 115 if their 27.5 comes from correctly substituting dimensions into formula and their 115 if in the range [75, 150] Accept use of functional rounding from correct methods for example (£)3150 from use of 27 (m^2) (£)3220 from use of 28 (m^2) (£)3160 from rounding (£)3162.50 Final answer must be written using correct money notation, for example 2dp if pence given		UCM15iii

Total: 45 marks

Mapping Matrix

Totals	UN	UCM	HID	PS	UPS	SC
Section A	8	5	2	5	10	N/A
Section B	21	18	6	39	6	N/A
Total (%)	48%	38%	14%	73%	27%	24/28

Ofqual Mapping Requirements

	UN	UCM	HID	PS	UPS	SC
Total (%)	45-55%	30-45%	10-20%	73-77%	23-27%	As many as possible

End of Mark Scheme