TQUK Functional Skills Qualification in Maths at Level 2

Mark Scheme (Past Paper 1)

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	1 032 131	ACO	UPS	UN2i
2	1	1	8.655	ACO	UPS	UN10ii
3	2	2	2.475 (m)	**Award full marks if correct answer seen**	UPS	UN10i
		1	3.6 – 1.125	OE method Accept for example 360 cm – 112.5 cm		
		1	2.475 (m)	ACO		
4	2	2	79	**Award full marks if correct answer seen**	UPS	UN12
		1	49 or 30	ACO Shows an understanding of BIDMAS		
		1	79	ACO		

Q	Total Marks	Marks	Answer/Examples	Further Considerations/Comments	PS/UPS	SC
5	2	2	(Website) A and 37.5(%) OR (Website) A and 0.38 and 0.375 OR (Website) A and $\frac{76}{200}$ and $\frac{75}{200}$	**Award full marks if correct answer and correct reason seen**	PS	
		1	37.5(%) OR 0.38 and 0.375 OR $\frac{76}{200}$ and $\frac{75}{200}$	OE method for example may find 38% and $\frac{3}{8}$ of an integer OE fractions which allow a direct comparison		UN4
		1	(Website) A and 37.5(%) OR (Website) A and 0.38 and 0.375 OR (Website) A and $\frac{76}{200}$ and $\frac{75}{200}$	Accept **(Website) A** AND any correct reason		

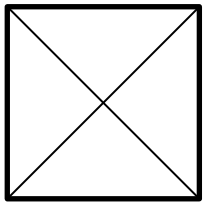
6	2	2	$\frac{7}{15}$	**Award full marks if correct answer seen**	UPS	
		1	$\frac{28}{60}$	OE fraction or probability for example 0.46(666…) or 46.6(666…)(%)		HID26
		1	$\frac{7}{15}$	ACO		HID27

7	2	2	65(°)	**Award full marks if correct answer seen**	UPS	UCM2 2i
		1	(180 – 50) ÷ 2	OE method		
		1	65(°)	ACO		

Q	Total Marks	Marks	Answer/Examples	Further Considerations/Comments	PS/UPS	SC
8	3	3	80 (feet) OR [74, 84] (feet)	**Award full marks if correct answer given**		
			Alternative method 1: Perimeter first		PS	
		1	8 + 3 + 5 + 3 + 5	OE method to work out perimeter		UCM1 6ii
		1	24 (m)	ACO Implies 1st mark		UCM1 6ii
		1	80 (feet)	FOL their 24 correctly converted to feet, allow ½ gridline tolerance.		UCM1 4ii
			Alternative method 2: Conversion first			
		1	[9, 11] (feet) OR [26, 28] (feet) OR [15, 17] (feet)	ACO Correctly converts at least one dimension to feet		UCM1 4ii
		1	Their [26, 28] + their [9, 11] +their [9, 11] + their [15, 17] + their [15, 17]	OE method to work out perimeter. FOL their dimensions if they are within range		UCM1 6ii
		1	[74, 84] (feet)	FOL their dimensions if they are within range		UCM1 6ii

Total: 15 marks

Section B: Calculator

Q	Marks in Total	Marks	Answer/Examples	Further Considerations/Comments	PS/UPS	SC
1	1	1		ACO Mark intention	UPS	UCM21
2	1	1	3 000 000 000	ACO	UPS	UN1
3	2	2	(£)1563.75	**Award full marks if correct answer seen**	PS	UN5i
		1	1390 × 0.125 or 173.75 OR 1390 × 1.125	OE method		
		1	(£)1563.75	ACO		
4	2	2	$\frac{6}{7}, \frac{36}{35}, \frac{8}{7}, \frac{6}{5}$	**Award full marks if correct answer seen**	UPS	UN7i
		1	$\frac{30}{35}$ and $\frac{42}{35}$ and $\frac{40}{35}$ OR Correctly ordered but from highest to lowest. OR 3 fractions in correct order when one is covered up.	OE fractions that allow a direct comparison. Accept use of decimals or percentages.		
		1	$\frac{6}{7}, \frac{36}{35}, \frac{8}{7}, \frac{6}{5}$	ACO Accept any correct representation of the fractions		

Q	Marks in Total	Marks	Answer/Examples	Further Considerations/Comments	PS/UPS	SC
5	2	2	90%	**Award full marks if correct answer seen**	UPS	UN5ii
		1	(126 ÷ 140) × 100	OE method × 100 may be implied by their answer		
		1	90%	ACO		

6	2	2	Yes AND 7.5 (days)	**Award full marks if correct answer and correct reason seen**	PS	
		1	3 × 5 ÷ 2	OE method Award if 7.5 seen		UN11iii
		1	Yes AND 7.5 (days)	Accept **Yes** AND any correct reason		

Q	Marks in Total	Marks	Answer/Examples	Further Considerations/Comments	PS/UPS	SC
7	3	3	No AND correct reason for example No AND 20 (more km) OR No AND 5 (km per part) AND 10 (km per part) OR No AND 210 (km in total)	**Award full marks if correct answer and correct reason seen**	PS	
		1	105 ÷ (3 + 7 + 11) or 5 (km per part) OR 40 ÷ 4 or 10 (km per part)	OE method to apply ratio		UN11i
		1	105 ÷ (3 + 7 + 11) × 3 or 15 (km in Section A) AND 105 ÷ (3 + 7 + 11) × 7 or 35 (km in Section B) OR 105 ÷ (3 + 7 + 11) AND 40 ÷ 4 OR 5 (km per part) AND 10 (km per part) OR 10 × 21 or 210 (km in total)	OE method to find comparable figures Award if 20 (more km) seen		
		1	No AND correct reason for example No AND 20 (more km) OR No AND 5 (km per part) AND 10 (km per part) OR No AND 210 (km in total)	Accept **No** AND any correct reason		

Q	Marks in Total	Marks	Answer/Examples	Further Considerations/Comments	PS/UPS	SC
8	3	3	Yes AND correct reason for example Yes AND 60.4(444…) (kph) OR Yes AND 2.24(793…) (hours at 60.5 kph) OR Yes AND 136.1(25) (km in 2.25 hours)	**Award full marks if correct answer seen**	PS	
		1	136 ÷ 2.25 OR 136 ÷ 60.5 OR 2.25 × 60.5	OE method		UCM15i
		1	60.4(444…) (kph) OR 2.24(793…) (hours) OR 136.1(25) (km)	ACO Implies 1st mark Ignore any attempts at time conversion once 2.24(793…) (hours) seen Must be 2.24(….) not 2.25 for this mark		UCM15i
		1	Yes AND correct reason for example Yes AND 60.4(444…) (kph) OR Yes AND 2.24(793…) (hours at 60.5 kph) OR Yes AND 136.1(25) (km in 2.25 hours)	Accept **Yes** AND any correct reason FOL their 60.4(444…) correctly compared with 60.5 if 60 < their 60.4(444…) < 61 FOL their 2.24(793…) correctly compared with 2.25 if 2 < their 2.24(793…) < 3 FOL their 136.1(25) correctly compared with 136 if 136 < their 136.1(25) < 137		UN9

Q	Marks in Total	Marks	Answer/Examples	Further Considerations/Comments	PS/UPS	SC
9	3	**3**	0.865 (kg) OR 1.9… (lb)	**Award full marks if correct answer seen**	PS	UCM14i
		1	2.5 × 0.454 or 1.135 (kg) OR 2 ÷ 0.454 or 4.4(052…) (lb)	OE method to convert one of the values		
		1	2 – (2.5 × 0.454) OR 2 – their 1.135 OR (2 ÷ 0.454) – 2.5 OR Their 4.4(052…) – 2.5	OE method to work out how much flour is left over FOL their 1.135 or their 4.4(052…)		
		1	0.865 (kg) OR 1.9… (lb)	ACO		

10	3	1	(£)1420	ACO ALL	PS	UN2ii
		1	Their 1420 ÷ 0.71	OE method FOL their 1420 if their 1420 is either 1400, 1418,1419 or 1418.50 ALL		UN6b
		1	(£)2000	FOL the correct answer to their 1420 ÷ 0.71 only if the first mark not awarded ALL		UN6b

Q	Marks in Total	Marks	Answer/Examples	Further Considerations/Comments	PS/UPS	SC
11	4	4	1193(.7024) (cm^3) OR 1188 (cm^3)	**Award full marks if correct answer seen**	PS	
		1	$3.14 \times 4 \times 4 \times 22$	OE method to work out volume of cylinder		UCM17i
		1	1105.28 (cm^3)	ACO Implies 1st mark		UCM17i
		1	Their 1105.28×0.08 or 88(422.2) OR 1100×0.08 or 88 OR Their 1105.28×1.08 OR 1100×1.08	OE method to work out percentage or percentage increase FOL their 1105.28 from an attempt to work out volume of a cylinder Allow use of functional rounding		UN5i
		1	1193(.7024) (cm^3) OR 1188 (cm^3)	FOL the correct answer to their 1105.28×1.08 Allow use of functional rounding Ignore any attempts at a conversion once correct answer seen Allow for example 1200 (cm^3) or 1.2 litres if correct supported working seen		UN5i

Q	Marks in Total	Marks	Answer/Examples	Further Considerations/Comments	PS/UPS	SC
12	4	4	(£)216.11	**Award full marks if correct answer seen**	PS	UCM13
		1	8000×1.04^2	OE method to work out compound interest Award if 320, 8320 and 332.8 seen		
		1	8652.8(0)	ACO Implies 1st mark		
		1	(12 975 – their 8652.8) ÷ 20	OE method to work out monthly payments FOL their 8652.8		
		1	(£)216.11	FOL the correct answer to (12 975 – their 8652.8) ÷ 20 if final answer written in correct money format (for example 2dp if pence given)		
13	4	1	193.6 (grams)	ALL ACO Mean	PS	HID25
		1	97	ALL ACO Range		
		1	Yes AND correct reason for example mean weight for apples is more AND 193.6 (grams) seen	OE comment comparing means FOL their 193.6 if their 193.6 is in the range [151, 248]		
		1	Yes AND correct reason for example range for apples is lower AND 97 seen	OE comment FOL their 97 if their 97 is a result of subtracting two numbers from the table		

Q	Marks in Total	Marks	Answer/Examples	Further Considerations/Comments	PS/UPS	SC
14	5	5	No AND correct reason for example No AND –0.55(555) (°C) is warmer than –1(°C)	**Award full marks if correct answer seen**	PS	
			Alternative Method 1: Median First			
		1	28, 29, 30, 32, 35. 46 OR 46, 35, 32, 30, 29, 28 OR (30 + 32) ÷ 2	OE method to find the median		HID23i
		1	31	ACO Median Implies 1st mark		HID23i
		1	$\frac{5(their\ 31-32)}{9}$	OE method to substitute their median into the formula Their 31 must be in the range [28, 46]		UN3ii
		1	–0.55(555…)	FOL the correct answer using their 31 if their 31 is in the range [28, 46]		UN3ii
		1	No AND correct reason for example No AND –0.55(555) (°C) is warmer than –1(°C)	Accept **No** AND any correct reason FOL their –0.55(555…) correctly compared with –1 if their –0.55(555…) is a negative number		UN1
			Alternative Method 2: Conversion First			
		1	$\frac{5(any\ one\ value\ from\ table-32)}{9}$	OE method to substitute at least one value into the formula		UN3ii
		1	0 OR –1.6(666…) OR –2.2(222…) OR –1.1(111) OR 1.6(666…) OR 7.7(777…)	At least one correct conversion Implies 1st mark		UN3ii
		1	–2.2(222…), –1.6(666…), –1.1(111), 0, 1.6(666…), 7.7(777…) OR 7.7(777…), 1.6(666…), 0, –1.1(111), –1.6(666…) ,–2.2(222…), OR (–1.1(111) + 0) ÷ 2	OE method to find the median FOL their values		HID23i

		1	–0.55(555…)	ACO Implies 3rd mark		HID23i
		1	No AND correct reason for example No AND –0.55(555) (°C) is warmer than –1(°C)	Accept **No** AND any correct reason FOL their –0.55(555…) correctly compared with –1 if their –0.55(555…) is a negative number		UN1

Q	Marks in Total	Marks	Answer/Examples	Further Considerations/Comments	PS/UPS	SC
15	6	6	(£)29	**Award full marks if correct answer seen**	PS	
		1	3.14 × (1.5 ÷ 2) × (1.5 ÷ 2) or 1.7(6625) or 1.8 OR 3.14 × 0.75 × 0.75 or 1.7(6625) or 1.8 OR [3.14 × (1.5 ÷ 2) × (1.5 ÷ 2)] ÷ 2 or 0.8(831…) or 0.9 OR (3.14 × 0.75 × 0.75) ÷ 2 or 0.8(831…) or 0.9	OE method to work out area of circle or semicircle		UCM16 i
		1	3.14 × (1.5 ÷ 2) × (1.5 ÷ 2) + 1.5 × 4 OR 3.14 × 0.75 × 0.75 + 1.5 × 4 OR [1.7, 1.8] + 1.5 × 4	OE method to work out total area		UCM16 i
		1	7.7(6625) (cm^2)	ACO Accept [7.7, 7.8] from rounding or truncating Implies 1st mark		UCM16 i
		1	(£)3.75	ACO Mode		HID23ii
		1	Their 3.75 × their 7.7(6625) or 29.12(343…) OR Their 3.75 × [7.7, 7.8] or [28.875, 29.25]	OE method to work out total cost Their 3.75 must be in the range [2.99, 5.75] Their [7.7, 7.8] must come from an attempt at an area calculation or partial area calculation. Accept their 3.75 × their 8 from rounding their [7.7, 7.8] up to the nearest whole number of metres.		UCM15 iii
		1	(£)29	FOL the correct answer to their 3.75 × [7.7, 7.8] correctly rounded to the nearest whole number. FOL the correct answer to their 3.75 × their 8 provided final answer is a whole number.		UN9

Total: 45 marks

Mapping Matrix

Totals	UN	UCM	HID	PS	UPS	SC
Section A	8	5	2	5	10	N/A
Section B	22	16	7	39	6	N/A
Total (%)	50%	35%	15%	73%	27%	22/28

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