TQUK Functional Skills Qualification in Maths at Level 2

Mark Scheme (Past Paper 5)

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: 33

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	8.966	ACO	UPS	UN10i
2	1	1	8.5	ACO	UPS	UN10ii
3	2	2	$10\frac{9}{20}$	**Award full marks if correct answer given**	UPS	
			Alternative method 1			
		1	$(8)\frac{5}{20}$ (+) $(2)\frac{4}{20}$ or $(10)\frac{9}{20}$	Finds a common denominator OE fraction Accept e.g. 10.45 from 8.25 + 2.2		UN7ii
		1	$10\frac{9}{20}$	ACO OE mixed number		UN7ii
			Alternative method 2			
		1	$\frac{165}{20}$ (+) $\frac{44}{20}$ or $\frac{209}{20}$	Finds a common denominator OE fraction		UN7ii
		1	$10\frac{9}{20}$	ACO OE mixed number		UN7ii

Q	Total Marks	Marks	Answer/Examples	Further Considerations/Comments	PS/UPS	SC
4	2	2	150	**Award full marks if correct answer given**	UPS	
		1	25 OR 50 seen	ACO Shows an understanding of BIDMAS		UN12
		1	150	ACO		UN12

5	2	2	Yes AND (£) 1 216 345 OR Yes AND (£)389 250 OR Yes AND (£) 824 405	**Award full marks if correct answer given**	PS	
		1	(£)1 216 345 OR (£)389 250 OR (£)824 405	ACO 389 250 from 1 215 000 – 825 750 824 405 from 1 215 000 – 390 595 Calculations with numbers above one million are not expected at Level 2 but award if seen.		UN2i
		1	Yes AND (£)1 216 345 OR Yes AND (£)389 250 OR Yes AND 824 405	Accept Yes AND any correct reason FOL their 1 216 345 correctly compared with 1 215 000 or Their 389 250 correctly compared with 390 595 or Their 824 405 correctly compared with 825 750		UN1

6	2	2	2.4 (g/cm^3)	**Award full marks if correct answer given**	UPS	
		1	48(00) ÷ 20(00)	OE method		UCM15ii
		1	2.4 (g/cm^3)	ACO Ignore any units		UCM15ii

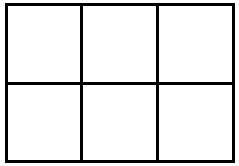
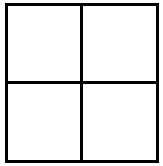
Q	Total Marks	Marks	Answer/Examples	Further Considerations/Comments	PS/UPS	SC
7	2	2	4 (km)	**Award full marks if correct answer given**	UPS	
		1	8 × 50 000 or 400 000 (cm)	OE method to apply scale		UCM18i
		1	4 (km)	ACO		UCM18i

8	3	3	0.05 AND 5(%)	**Award full marks if correct answer given**	PS	
		1	$\frac{10}{200}$	ACO OE fraction or probability e.g. 10 out of 200		HID26
		1	0.05 or 5(%)	FOL their fraction correctly converted to a decimal and a percentage		HID27
		1	0.05 AND 5(%)	FOL their fraction correctly converted to a decimal and a percentage If one or zero scored, then award one mark special case if their decimal and percentage match each other		HID27

Total: 15 marks

Section B: Calculator

Q	Total Marks	Marks	Answer/Examples	Further Considerations/Comments	PS/UPS	SC
1	1	1	**a)** Positive correlation	ACO	UPS	HID28ii
2	1	1	1200	ACO	UPS	HID23ii
3	2	2	(-1, -2) AND (2, 1) OR (-4, 7) AND (-7, 4)	**Award full marks if correct answer given**	PS	
		1	(-1, -2) or (2, 1) or (-4, 7) or (-7, 4)	At least one correct coordinate		UCM22ii
		1	(-1, -2) AND (2, 1) OR (-4, 7) AND (-7, 4)	ACO Must be given as coordinates If both pairs given, then all four must be correct		UCM22ii

Q	Total Marks	Marks	Answer/Examples	Further Considerations/Comments	PS/UPS	SC
4	2	1	Correct plan view e.g. 	ACO Mark intention	UPS	UCM21
		1	Correct side view e.g. 	ACO Mark intention		UCM21

Q	Total Marks	Marks	Answer/Examples	Further Considerations/Comments	PS/UPS	SC
5	2	1	0.0625	ACO	UPS	UN4
		1	6.25 (%)	ACO If zero scored award one mark special case if their decimal and their percentage match each other		UN4

6	2	2	87.5(%)	**Award full marks if correct answer given**	PS	
		1	$\frac{210}{210+30}$ (× 100)	OE method × 100 may be implied by their answer		UN5ii
		1	87.5(%)	ACO		UN5ii

7	3	3	9 (panels)	**Award full marks if correct answer given**	PS	
		1	4 + 5.5 + 3.3 + 2 + 8.125 or 22.925 (m)	OE method to work out perimeter		UCM16ii
		1	Their 22.925 ÷ 2.6 or 8.8(173…)	OE method		UN11ii
		1	9 (panels)	ACO		UN9

Q	Total Marks	Marks	Answer/Examples	Further Considerations/Comments	PS/UPS	SC
8	3	1	3	ACO	PS	UN2ii
		1	4 × their 3 × 8^2	OE method to substitute their 3 into the formula. Accept use of: 3.1, 3.14, 3.142 or 3.1416 for their 3		UN3ii
		1	768 (cm^2)	Accept 793(.6) from use of 3.1 803(.84) from use of 3.14 804(.352) from use of 3.142 804(.2496) from use of 3.1416 Do not accept 804(.24704) from use of 3.14159		UCM17ii

9	3	3	0.40(92) (m^3 of pebbles)	**Award full marks if correct answer given**	PS	
		1	(7 × 3 – 5 × 2) × 0.06 or 0.66	OE method to use formula		UN3i
		1	0.66 × 0.38 or 0.25(08) OR 0.66 × 0.62 or 0.40(92)	OE method to work out 38%		UN5i
		1	0.40(92) (m^3 of pebbles)	ACO Ignore any units Accept any correct rounding or truncating		UN5i

Q	Total Marks	Marks	Answer/Examples	Further Considerations/Comments	PS/UPS	SC
10	3	3	Yes AND 18 (mph) OR Yes AND 52(.941…) (mins) OR Yes AND 14(.166…) (miles)	**Award full marks if correct answer given**	PS	
		1	15 ÷ 50 or 0.3 (miles per min) OR 15 ÷ 17 or 0.8(882…) (hours) OR 50 ÷ 60 or 0.83(333…) (hours)	OE method		UCM15i
		1	15 ÷ 50 × 60 OR Their 0.3 × 60 OR 15 ÷ 17 x 60 OR Their 0.8(882…) x 60 OR 50 ÷ 60 x 17 OR Their 0.83(333…) x 17	OE method		UCM15i
		1	Yes AND18 (mph) OR Yes AND 52(.941…) (mins) OR Yes AND 14(.166…) (miles)	Accept Yes AND any correct reason		UCM15i
11	4	4	14 (days)	**Award full marks if correct answer given**	PS	
		1	e.g. 10 miles = 16 km OR 50 miles = 80 km	Extracts any correct conversion from the graph		UCM14ii
		1	e.g. 4000 ÷ 8 × 5 or 2500 (miles)	OE method to convert 4000 km into miles or 180 miles into km		UCM14ii

			OR 180 ÷ 5 × 8 or 288 (km)			
		1	e.g. (4000 ÷ 8 × 5) ÷ 180 or 13(.888 ….) (days) OR 4000 ÷ (180 ÷ 5 × 8) or 13(.888 ….) (days)	OE method to work out how many days		UN11ii
		1	14 (days)	ACO		UN9

<table>
<tr><th>Q</th><th>Total Marks</th><th>Marks</th><th>Answer/Examples</th><th>Further Considerations/Comments</th><th>PS/UPS</th><th>SC</th></tr>
<tr><td rowspan="5">12</td><td rowspan="5">4</td><td>4</td><td colspan="2">Award full marks for fully correct table</td><td rowspan="5">PS</td><td></td></tr>
<tr><td>1</td><td>200 ÷ (5 + 2 + 1) or 25</td><td>OE method</td><td>UN11i</td></tr>
<tr><td>1</td><td>5 × their 25
OR
2 × their 25</td><td>OE method
FOL their 25</td><td>UN11i</td></tr>
<tr><td>1</td><td>125
OR
50
OR
5 × their 25 AND 2 × their 25</td><td>125 OR 50 implies first 2 marks</td><td>UN11i</td></tr>
<tr><td>1</td><td>Fully correct table
<table>
<tr><th colspan="2">Shopping list</th></tr>
<tr><th>Type of sandwich</th><th>Number of sandwiches to order</th></tr>
<tr><td>Cheese</td><td>125</td></tr>
<tr><td>Ham</td><td>50</td></tr>
<tr><td>Chicken</td><td>25</td></tr>
<tr><td>Total</td><td>200</td></tr>
</table></td><td>ACO</td><td>UN11i</td></tr>
<tr><td rowspan="4">13</td><td rowspan="4">4</td><td>1</td><td>114 or 102</td><td>At least one mean</td><td rowspan="4">PS</td><td>HID25</td></tr>
<tr><td>1</td><td>110 or 120</td><td>At least one median</td><td>HID25</td></tr>
<tr><td>1</td><td>114 and 102 and 110 and 120</td><td>Both means and both medians</td><td>HID25</td></tr>
<tr><td>1</td><td>Valid comment, e.g.
If they use mean, then Manager is correct.
If they use median, then Charlie is correct.</td><td>OE comment</td><td>HID25</td></tr>
</table>

Q	Total Marks	Marks	Answer/Examples	Further Considerations/Comments	PS/UPS	SC
14	5	5	90 (cm)	**Award full marks if correct answer given**	PS	
		1	981 250 × 0.72	OE method		UN5i
		1	706 500 (cm^3)	ACO Implies 1st mark		UN5i
		1	e.g. 3.14 × 50 × 50 × h = their 706 500 OR 7850 × h = their 706 500	OE method to equate formula for volume of cylinder to their volume		UCM17i
		1	Their 706 500 ÷ (3.14 × 50 × 50) OR Their 706 500 ÷ 7850	OE method to work out height Implies 3rd mark		UCM17i
		1	90 (cm)	ACO		UCM17i

Q	Total Marks	Marks	Answer/Examples	Further Considerations/Comments	PS/UPS	SC
15	6	6	(£)416	**Award full marks if correct answer given**	PS	
		1	(£)15.75	ACO Mode		HID23ii
		1	3.14 × 1.5 × 1.5 (÷ 2) or 7.065 (m^2) or 3.5325 (m^2)	OE method to work out area of circle or area of one semi-circle		UCM16i
		1	(3.14 × 1.5 × 1.5) + 6.45 × 3 OR 7.065 + 6.45 × 3 OR 7.065 + 19.35	OE method to work out total area		UCM16i
		1	26.415 (m^2)	ACO Implies 2nd and 3rd mark		UCM16i
		1	Their 15.75 × their 26.415 or (£)416.03(625)	OE method to work out total cost. FOL their 15.75 if their 15.75 is in the range [15.75, 24.95]. FOL their 26.415 from a correct method for partial or total area. Accept e.g. 15.75 × 27 from rounding 26.415 up to the nearest whole square metre		UCM15iii
		1	(£)416	Accept (£)425 from 15.75 × 27		UN9

Total: 45 marks

Mapping Matrix

Totals	UN	UCM	HID	PS	UPS	SC
Section A	8	4	3	5	10	N/A
Section B	20	18	7	39	6	N/A
Total (%)	47%	37%	16%	73%	27%	22/28

Ofqual Mapping Requirements

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

End of Mark Scheme