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TQUK Functional Skills Qualification in Maths at Level 2

Mark Scheme (Past Paper 9)

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 document 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	0.572	ACO	UPS	UN10i
2	1	1	2.0615	ACO Accept any correct rounding once 2.0615 seen	UPS	UN10ii
3	2	2	- 4	Award full marks if correct answer given	UPS	
		1	16 or 20 seen	ACO Shows an understanding of BIDMAS		UN12
		1	- 4	ACO		UN12

Q	Total Marks	Marks	Answer/Examples	Further Considerations/Comments	PS/UPS	SC
4	2	1	Rounds at least two numbers e.g. (7.1423 \approx) 7 AND (6.8967 \approx) 7 OR (49.25830041 \approx) 49 AND (7.1423 \approx) 7 OR (49.25830041 \approx) 49 AND (6.8967 \approx) 7	Accept any correct rounding	UPS	UN2ii
		1	e.g. $7 \times 7 = 49$ OR $49 \div 7 = 7$	Accept any correct method of checking using their correctly rounded numbers Do not accept $7 \times 6 = 42$		
5	2	2	Yes AND 116($^{\circ}$) OR Yes AND 184($^{\circ}$) AND 180($^{\circ}$)	Award full marks if correct answer and correct reason given	PS	
		1	180 – 64 or 116($^{\circ}$) OR 120 + 64 or 184($^{\circ}$)	OE method		UCM22i
		1	Yes AND 116($^{\circ}$) OR Yes AND 184($^{\circ}$) AND 180($^{\circ}$)	Accept Yes AND any correct reason		UCM22i

Q	Total Marks	Marks	Answer/Examples	Further Considerations/Comments	PS/UPS	SC
6	2	2	475 294	Award full marks if correct answer given	UPS	
		1	493 797 OR 720 422 OR 263 631	ACO 493 797 from 738 925 – 245 128 720 422 from 738 925 – 18 503 263 631 from 245 128 + 18 503		UN2i
		1	475 294	FOL the correct answer to their 493 797 – 18 503 OR FOL the correct answer to their 720 422 – 245 128 OR FOL the correct answer to 738 925 – their 263 631 Only if the first mark not awarded		UN2i
7	2	2	3.5 (km)	Award full marks if correct answer given	UPS	
		1	7 × 50 000 or 350 000 (cm)	OE method to apply scale		UCM18i
		1	3.5 (km)	ACO		UCM18i

Q	Total Marks	Marks	Answer/Examples	Further Considerations/Comments	PS/UPS	SC
8	3	3	0.24 AND 24(%)	Award full marks if correct answer given	PS	
		1	$\frac{12}{50}$	ACO OE fraction or probability e.g. 12 out of 50 May be seen or implied in subsequent working or by correct decimal or percentage		HID26
		1	0.24 or 24(%)	FOL their fraction correctly converted to a decimal OR a percentage		HID27
		1	0.24 AND 24(%)	FOL their fraction correctly converted to a decimal AND a percentage If 2 nd and 3 rd mark not awarded, 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
9	1	1	Twelve million five hundred (and) forty thousand	ACO Accept any recognisable spelling	UPS	UN1
10	1	1	824.0	ACO	UPS	UN9
11	2	2	No AND 20 (days)	Award full marks if correct answer and correct reason given	PS	
		1	$5 \times 12 \div 3$	OE method		UN11iii
		1	No AND 20 (days)	ACO Accept No AND any correct reason		UN11iii
12	2	1	$\frac{472}{1000}$ OR $\frac{236}{500}$ OR $\frac{59}{125}$	ACO OE fraction	UPS	UN4
		1	47.2(%)	ACO If zero scored, then award one mark special case if their fraction and their percentage match each other		UN4
13	2	2	$\frac{4}{5}, \frac{13}{15}, \frac{15}{10}, \frac{8}{5}$	Award full marks if correct answer given	UPS	
		1	$\frac{24}{30}, \frac{48}{30}, \frac{26}{30}, \frac{45}{30}$	Finds common denominator OE fractions that allow a direct comparison		UN7i
		1	$\frac{4}{5}, \frac{13}{15}, \frac{15}{10}, \frac{8}{5}$	ACO Accept fractions written in any format		UN7i

Q	Total Marks	Marks	Answer/Examples	Further Considerations/Comments	PS/UPS	SC
14	2	2	85(%)	Award full marks if correct answer given	PS	
		1	$\frac{1088}{1088+192} (\times 100)$ or 0.85	OE method $\times 100$ may be implied by their answer		UN5ii
		1	85(%)	ACO		UN5ii
15	3	3	No AND correct reason e.g. No AND (-15 is not as cold as) -17(.777...)	Award full marks if correct answer and correct reason given	PS	
		1	$\frac{5(0-32)}{9}$	OE method to substitute into formula		UN3ii
		1	-17(.777...) (°C)	ACO		UN3ii
		1	No AND correct reason e.g. No AND (-15 is not as cold as) -17(.777...)	Accept No AND any correct reason		UN1
16	3	3	Yes AND 2 800 000 (cm ²)	Award full marks if correct answer and correct reason given	PS	
		1	$2 \times [(500 \times 1000) + (500 \times 600) + (600 \times 1000)]$ OR $2 \times (500\,000 + 300\,000 + 600\,000)$	OE method to work out surface area		UCM17ii
		1	2 800 000 (cm ²)	ACO		UCM17ii
		1	Yes AND 2 800 000 (cm ²)	Accept Yes AND any correct reason FOL their 2 800 000 correctly compared with 2 750 500		UN1

Q	Total Marks	Marks	Answer/Examples	Further Considerations/Comments	PS/UPS	SC
17	3	3	No AND 29.7 (m)	Award full marks if correct answer and correct reason given	PS	
		1	3.14×5 or 15.7	OE method to work out circumference of circle		UCM16ii
		1	$3.14 \times 5 + 7 + 7$ OR $15.7 + 14$	OE method to work out total perimeter		UCM16ii
		1	No AND 29.7 (m)	ACO Accept No AND any correct reason		UCM16ii

18	3	3	500 (cm ³)	Award full marks if correct answer given	PS	
		1	e.g. $8.96 = \frac{4480}{v}$ OR e.g. $v = m \div d$	OE method to substitute values into formula OR Correctly rearranges formula in terms of volume		UCM15ii
		1	$4480 \div 8.96$	OE method Implies 1 st mark		UCM15ii
		1	500 (cm ³)	ACO		UCM15ii

Q	Total Marks	Marks	Answer/Examples	Further Considerations/Comments	PS/UPS	SC
19	4	4	(£)37 (per hour)	Award full marks if correct answer given	PS	
		1	25 AND 35 AND 45 AND 55	ACO Correct midpoints identified		HID24
		1	$(25 \times 2) + (35 \times 9) + (45 \times 3) + (55 \times 1)$ OR $50 + 315 + 135 + 55$ or 555	Allow consistent use of upper or lower bounds multiplied by the frequency Allow one error in midpoints, upper bounds or lower bounds		HID24
		1	Their $555 \div 15$	FOL their 840 from correct method Allow consistent use of upper or lower bounds multiplied by the frequency divided by 15 Allow one error in midpoints, upper bounds or lower bounds. Do not allow $15 \div 4$		HID24
		1	(£)37 (per hour)	ACO		HID24
20	4	4	11 (days)	Award full marks if correct answer given	PS	
		1	$1860 \div 30$ or 62 (hours)	OE method to work out number of hours		UCM15i
		1	$1860 \div 30 \div 6$	OE method to work out number of days		UCM15i
		1	10(.333...) (days)	ACO Implies first 2 marks		UCM15i
		1	11 (days)	FOL their 10(.333...) correctly rounded up to the nearest whole number		UN9

Q	Total Marks	Marks	Answer/Examples	Further Considerations/Comments	PS/UPS	SC
21	4	1	32	ALL ACO Mean	PS	HID25
		1	19	ALL ACO Range		HID25
		1	Yes AND correct reason e.g. mean for chocolate is higher AND 32 seen	OE comment comparing means FOL their 32 if their 32 is in the range [24, 43]		HID25
		1	Yes AND correct reason e.g. range for chocolate is lower AND 19 seen	OE comment FOL their 19 if their 19 is a result of subtracting two numbers from the table		HID25
22	5	5	16 (times)	Award full marks if correct answer given	PS	
		1	$0.5 \times 80 \times 30$ or 1200	OE method to work out area of triangle		UCM16i
		1	$0.5 \times 80 \times 30 \times 140$ OR 1200×140	OE method to work out volume		UN3i
		1	168 000 (cm ³)	ACO		UCM17i
		1	Their $168\,000 \div 1000 \div 11$ or 15(.2727...)	OE method FOL their 168 000 from an attempt at volume		UN11ii
		1	16 (times)	FOL their 15(.2727...) correctly rounded up to the nearest whole number		UN9

Q	Total Marks	Marks	Answer/Examples	Further Considerations/Comments	PS/UPS	SC
23	6		Alternative Method 1: Total cost first		PS	
		1	(£)2(.00)	ACO Median		HID23i
		1	40×0.305	OE method		UCM14i
		1	12.2 (m)	ACO Implies 2 nd mark		UCM14i
		1	Their 12.2 \times their 2 or 24.4 OR Their 12 \times their 2 or 24 OR Their 13 \times their 2 or 26	OE method FOL their 12.2 from either 40×0.305 or $40 \div 0.305$ Accept if their 12.2 is rounded up or down to a whole number of metres FOL their 2 if $1 \leq \text{their } 2 \leq 2.75$ 24.4 or 24 or 26 implies the first 3 marks		UCM15iii
		1	Their 24.4 \times 0.18 or (£)4.392 OR Their 24.4 \times 1.08 or (£)28.792 OR Their 24 \times 0.18 or (£)4.32 OR Their 24 \times 1.18 or (£)28.32 OR Their 26 \times 0.18 or (£)4.68 OR Their 26 \times 1.18 or (£)30.68	FOL their 24.4 or their 24 or their 26 from their length in metres \times their median		UN5i
1	(£)28.79 or (£)28.80 or (£)28.32 or (£)30.68	FOL the correct answer to either: 12.2 \times their 2 AND then increased by 18% if $1 \leq \text{their } 2 \leq 2.75$ OR Their 12.2 \times 2 AND then increased by 18% if their 12.2 comes from 40×0.305	UN5i			

			Final answer must be written using correct money notation i.e. 2dp if pence given	
		Alternative Method 2: Percentage first		
	1	(£)2(.00)	ACO Median	HID23i
	1	40×0.305	OE method	UCM14i
	1	12.2 (m)	ACO Implies 2 nd mark	UCM14i
	1	Their 12.2×0.18 or 2.196 (m) OR Their 12.2×1.18 or 14.396 (m) OR Their 12×0.18 or 2.16 (m) OR Their 12×1.18 or 14.16 (m) OR Their 13×0.18 or 2.34 (m) OR Their 13×1.18 or 15.34 (m)	OE method FOL their 12.2 from either 40×0.305 or $40 \div 0.305$ Accept if their 12.2 is rounded up to down to a whole number of metres 2.196 (m) or 14.396 (m) or 2.16 (m) or 14.16 (m) or 2.34 (m) or 15.34 (m) implies the first 3 marks	UN5i
	1	Their $14.396 \times$ their 2 or (£)28.792 OR Their $14.16 \times$ their 2 or (£)28.32 OR Their $15.34 \times$ their 2 or (£)30.68 OR Their $14 \times$ their 2 or (£)28 OR Their $15 \times$ their 2 or (£)30 OR Their $16 \times$ their 2 or (£)32	FOL their length in metres correctly increased by 18% Accept any correct rounding or truncating of their length in metres FOL their 2 if $1 \leq$ their 2 \leq 2.75	UCM15iii
	1	(£)28.79 or (£)28.80 or (£)28.32 or (£)30.68 or (£)28 or (£)30 or (£)32	FOL the correct answer to either: 12.2 increased by 18% AND then \times their 2 if $1 \leq$ their 2 \leq 2.75 OR	UN5i

				<p>Their 12.2 increased by 18% AND then $\times 2$ if their 12.2 comes from 40×0.305</p> <p>Final answer must be written using correct money notation i.e. 2dp if pence given</p>		
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Total: 45 marks

Past paper

Mapping Matrix

Totals	UN	UCM	HID	PS	UPS	SC
Section A	8	4	3	5	10	N/A
Section B	20	16	9	39	6	N/A
Total (%)	47%	33%	20%	73%	27%	21/28

Ofqual Mapping Requirements

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

End of Mark Scheme



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