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TQUK Functional Skills Qualification in Maths at Level 2

Mark Scheme (Past Paper 7)

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 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 without bias and 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	4.404	ACO	UPS	UN10i
2	1	1	31.24	ACO	UPS	UN10ii
3	2	2	900 cm OR 9 m	**Award full marks if correct answer given**	UPS	
		1	4.5 × 200 or 900	OE method		UCM18i
		1	900 cm OR 9 m	ACO UNIT OE correct answer with correct units		UCM18i
4	2	2	$\frac{11}{28}$	**Award full marks if correct answer given**	UPS	
		1	$\frac{7}{28}$ (+) $\frac{4}{28}$	Finds a common denominator OE fractions		UN7i
		1	$\frac{11}{28}$	ACO OE fraction		UN7i

Q	Total Marks	Marks	Answer/Examples	Further Considerations/Comments	PS/UPS	SC
5	2	2	Monday AND 16.6(666…) (%) or 16.7% OR Monday AND 0.166(666…) or 0.17 AND 0.16 OR Monday AND $\frac{25}{150}$ AND $\frac{24}{150}$	**Award full marks if correct answer and correct reason given**	PS	
		1	16.6(666…)(%) or 16.7% OR 0.166(666…) or 0.17 AND 0.16 OR $\frac{25}{150}$ AND $\frac{24}{150}$	OE method e.g. may find 16% and $\frac{1}{6}$ of an integer OE fractions which allow a direct comparison		UN4
		1	Monday AND 16.6(666…) (%) or 16.7% OR Monday AND 0.166(666…) or 0.17 AND 0.16 OR Monday AND $\frac{25}{150}$ AND $\frac{24}{150}$	Accept Monday and any correct reason OE fractions which allow a direct comparison		UN4

6	2	2	65(°)	**Award full marks if correct answer given**	UPS	
		1	180 – 90 – 25	OE method		UCM22i
		1	65(°)	ACO		UCM22i

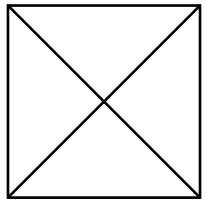
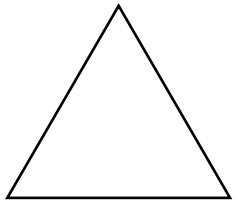
Q	Total Marks	Marks	Answer/Examples	Further Considerations/Comments	PS/UPS	SC
7	2	2	2.65 (g/cm^3)	**Award full marks if correct answer given**	UPS	
		1	265(0) ÷ 100(0)	OE method		UN15ii
		1	2.65 (g/cm^3)	ACO Ignore any units		UN15ii

8	3	3	(£)22	**Award full marks if correct answer given**	PS	
		1	(£)20	ACO Mode		HID23ii
		1	1.1 × their 20	OE method to substitute their 20 into the formula. FOL their 20 if in the range [20, 40] may be implied by: 30.8 from use of mean 28.05 from use of median		UN3ii
		1	(£)22	FOL the correct answer to 1.1 × their 20 if their 20 is in the range [20, 40] may be implied by a final answer of: (£)30.80 from use of mean (£)28.05 from use of median		UN3ii

Total: 15 marks

Section B: Calculator

Q	Total Marks	Marks	Answer/Examples	Further Considerations/Comments	PS/UPS	SC
9	1	1	5 300 000	ACO	UPS	UN1
10	1	1	– 948 750 – 34 589 1 004 682 1 020 845	ACO	UPS	UN1
11	2	2	No AND 1.6 hours	**Award full marks if correct answer and correct reason given**		
		1	2 × 4 ÷ 5 or 1.6 hours	OE method	PS	UN11iii
		1	No AND 1.6 hours	Accept No AND any correct reason. Ignore any attempts at time conversion once 1.6 seen		UN11iii
12	2	2	$2\frac{5}{6},\ 2\frac{13}{18},\ 2\frac{2}{3},\ 2\frac{4}{9}$	**Award full marks if correct answer given**	UPS	
		1	$(2)\frac{8}{18}$ AND $(2)\frac{15}{18}$ AND $(2)\frac{12}{18}$ OR Correctly ordered but from lowest to highest OR 3 fractions in correct order when one is covered up	Finds common denominator OE fractions that allow a direct comparison. Accept use of decimals e.g. (2).44(444…) AND (2).83(333…) AND (2).66(666…) AND (2).72(222…)		UN7ii
		1	$2\frac{5}{6},\ 2\frac{13}{18},\ 2\frac{2}{3},\ 2\frac{4}{9}$	ACO Accept fractions written in any format		UN7ii

Q	Total Marks	Marks	Answer/Examples	Further Considerations/Comments	PS/UPS	SC
13	2	1	Correct plan view. 	Mark intention	UPS	UCM21
		1	Correct side view. 	Mark intention		UCM21

Q	Total Marks	Marks	Answer/Examples	Further Considerations/Comments	PS/UPS	SC
14	2	2	(-6, -7) AND (-2, –7) OR (-6, 1) AND (-2, 1)	**Award full marks if correct answer given**	PS	
		1	(-6, -7) or (-2, -7) or (-6, 1) or (-2, 1)	At least one correct coordinate		UCM22ii
		1	(-6, -7) AND (-2, –7) OR (-6, 1) AND (-2, 1)	ACO Must be given as coordinates If both pairs given, then all 4 must be correct		UCM22ii

15	3	3	(£)80	**Award full marks if correct answer given**	PS	
		1	170 ÷ 0.68	OE method		UN6b
		1	(£)250	ACO Implies 1st mark		UN6b
		1	(£)80	FOL the correct answer to their 250 – 170		UN6b

Q	Total Marks	Marks	Answer/Examples	Further Considerations/Comments	PS/UPS	SC
16	3	3	No AND correct reason e.g. No AND $\frac{1}{7}$ OR No AND $\frac{60}{420}$ AND $\frac{70}{420}$	**Award full marks if correct answer and correct reason given**	PS	
		1	$\frac{60}{420}$	OE fraction Accept e.g. (210 + 50 + 60 + 100) ÷ 6 OR 420 ÷ 6		UN8
		1	$\frac{60}{420}$ AND $\frac{70}{420}$ OR $\frac{1}{7}$	OE fractions that allow a direct comparison $\frac{1}{7}$ Implies 1st mark Accept e.g. 70 (mins)		UN8
		1	No AND correct reason e.g. No AND $\frac{1}{7}$ OR No AND $\frac{60}{420}$ AND $\frac{70}{420}$	Accept No AND any correct reason Accept e.g. No AND 70 (mins) not 60 (mins)		UN8

Q	Total Marks	Marks	Answer/Examples	Further Considerations/Comments	PS/UPS	SC
17	3	3	Yes AND 13 345 (cm^2)	**Award full marks if correct answer and correct reason given**	PS	
		1	3.14 × 25 × 25 (× 2) or 1962.5 or 3925	OE method to work out area of one or both circles Award if area of circle is seen in volume calculation e.g. 3.14 × 25 × 25 × 60 may be implied by 117 750		UN17ii
		1	3.14 × 25 × 25 × 2 + 2 × 3.14 × 25 × 60 OR 3925 + 2 × 3.14 × 25 × 60 OR 3925 + 9420 or 13 345	OE method to work out total surface area		UN17ii
		1	Yes AND 13 345 (cm^2)	Accept No and any correct reason		UN17ii
18	3	1	7 AND 4	ACO Both ranges	PS	HID25
		1	Week 2 AND 7 AND 4 seen	FOL their ranges if both values come from subtracting one value from another in the table		HID25
		1	Correct reason e.g. Week 2 has the lower range	FOL their ranges if both values come from subtracting one value from another in the table		HID25

<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">19</td><td rowspan="5">4</td><td>4</td><td>Fully correct table</td><td>Award full marks for fully correct table</td><td rowspan="5">PS</td><td></td></tr>
<tr><td>1</td><td>280 ÷ (5 + 3 + 2) or 28</td><td>OE method</td><td>UN11i</td></tr>
<tr><td>1</td><td>5 × their 28
OR
3 × their 28
OR
2 × their 28</td><td>OE method
FOL their 28</td><td>UN11i</td></tr>
<tr><td>1</td><td>140 OR 84 OR 56
OR
5 × their 28 AND 3 × their 28 AND 2 × their 28</td><td>140 OR 84 OR 56 implies 2 marks</td><td>UN11i</td></tr>
<tr><td>1</td><td>Fully correct table
<table>
<tr><th colspan="2">Tickets available</th></tr>
<tr><th>Ticket Type</th><th>Number Available</th></tr>
<tr><td>Standard</td><td>140</td></tr>
<tr><td>Premium</td><td>84</td></tr>
<tr><td>Luxury</td><td>56</td></tr>
<tr><td>Total</td><td>280</td></tr>
</table></td><td>ACO</td><td>UN11i</td></tr>
</table>

Q	Total Marks	Marks	Answer/Examples	Further Considerations/Comments	PS/UPS	SC
20	4	4	73(.476) (cm) or 73(.32) (cm) or 73.5 (cm) or 74 (cm)	**Award full marks if correct answer given**	PS	
		1	3.14 × 15	OE method		UCM16ii
		1	47.1 (cm)	ACO Circumference Implies 1st mark		UCM16ii
		1	3.14 × 15 × 0.56 or 26.376 OR Their 47.1 × 0.56 or 26.376 OR 3.14 × 15 × 1.56 or 73.476 OR Their 47.1 × 1.56 or 73.476 OR Their 47 × 0.56 or 26.32 OR Their 47 × 1.56 or 73.32	OE method to find 56% of circumference or increase circumference by 56%. FOL their 47.1 Accept use of area e.g. 176.625 × 0.56 or 98.91 OR 176.625 × 1.56 or 275.535 Accept any correct/functional rounding or truncating		UN5i
		1	73(.476) (cm) or 73(.32) (cm) or 73.5 (cm) or 74 (cm)	FOL the correct answer to their 47.1 × 1.56 Accept any correct/functional rounding or truncating		UN5i

Q	Total Marks	Marks	Answer/Examples	Further Considerations/Comments	PS/UPS	SC
21	4	4	e.g. Plastic AND (£)0.65 (per pint) OR Plastic AND (£)1.66 (per litre) AND (£)1.15 (per litre) OR Plastic AND (£)3.32 (for 2 litres)	**Award full marks if correct answer and correct reason given**	PS	
		1	2 × 1.76 OR 1 ÷ 1.76	OE method to convert litres to pints or pints to litres		UCM14i
		1	3.52 (pints) OR 0.56(818…) or 0.6 (litres)	ACO for at least one correct conversion		UCM14i
		1	e.g. 2.30 ÷ 3.52 or 0.65(34…) pounds per pint OR 1 ÷ 0.6 or (£)1.66 per litre	OE method to convert values into a comparable format		UN11ii
		1	e.g. Plastic AND (£)0.65 (per pint) OR Plastic AND (£)1.66 (per litre) AND (£)1.15 (per litre) OR Plastic AND (£)3.32 (for 2 litres)	Accept Plastic AND any correct comparable values		UN11ii

Q	Total Marks	Marks	Answer/Examples	Further Considerations/Comments	PS/UPS	SC
22	5	1	0.5 × 11.5 × 4.5	OE method to work out area of triangle	PS	UCM16i
		1	25.875 (m^2)	ACO Area Implies 1st mark		UCM16i
		1	12 (m^2)	ACO Median		HID23i
		1	Their 25.875 × 3 ÷ their 12 or 6(.46875)	OE method to work out how many tins. FOL their 25.875 from an attempt to work area of triangle. FOL their 12 if in the range [6, 14]. May be implied by correct number of tins for their area		UN11ii
		1	7 (tins)	FOL their 6(.46875) rounded up to the nearest whole number		UN9

Q	Total Marks	Marks	Answer/Examples	Further Considerations/Comments	PS/UPS	SC
23	6	1	30 and 90 and 150 and 210	Correct midpoints identified ACO	PS	HID24
		1	(30 × 11) + (90 × 36) + (150 × 18) + (210 × 5) OR 330 + 3240 + 2700 + 1050 or 7320	Allow one error in midpoints Allow consistent use of upper or lower bounds multiplied by the frequency		HID24
		1	(Total number of jobs) 70	ACO		HID24
		1	Their 7320 ÷ their 70	FT their 7320 and their 70 Allow consistent use of upper or lower bounds multiplied by the frequency divided by their 70 Do not allow 70 ÷ 4		HID24
		1	104.5(714…) (mins)	ACO		HID24
		1	Yes and 104.5(714…) (mins)	Accept Yes and any correct reason. FOL their 104.5(714…) correctly compared with 104.75 if 104 < their 104.5(714…) < 105		UN9

Total: 45 marks

Mapping Matrix

Totals	UN	UCM	HID	PS	UPS	SC
Section A	8	6	1	5	10	N/A
Section B	23	13	9	39	6	N/A
Total (%)	52%	32%	16%	73%	27%	20/28

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

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