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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 |

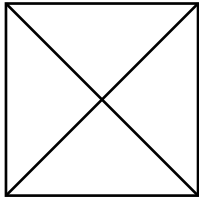
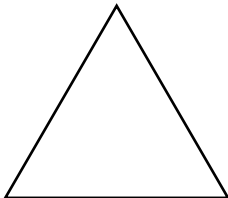
| Q | Total Marks | Marks | Answer/Examples | Further Considerations/Comments | PS/UPS | SC |
|---|-------------|-------|---------------------------|---|--------|--------|
| 7 | 2 | 2 | 2.65 (g/cm ³) | Award full marks if correct answer given | UPS | |
| | | 1 | 265(0) ÷ 100(0) | OE method | | UN15ii |
| | | 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 | $2 \times 4 \div 5$ 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. $(2).44(444\dots)$ AND $(2).83(333\dots)$ AND $(2).66(666\dots)$ AND $(2).72(222\dots)$ | | 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 | $170 \div 0.68$ | OE method | | UN6b |
| | | 1 | (£)250 | ACO Implies 1 st 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. $(210 + 50 + 60 + 100) \div 6$ OR $420 \div 6$ | | UN8 |
| | | 1 | $\frac{60}{420}$ AND $\frac{70}{420}$ OR $\frac{1}{7}$ | OE fractions that allow a direct comparison $\frac{1}{7}$ Implies 1 st 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 |

| Q | Total Marks | Marks | Answer/Examples | Further Considerations/Comments | PS/UPS | SC | | | | | | | | | |
|-------------------|------------------|-------|---|--|--------|-------------|------------------|----------|-----|---------|----|--------|----|-------|-----|
| 19 | 4 | 4 | Fully correct table | Award full marks for fully correct table | PS | | | | | | | | | | |
| | | 1 | $280 \div (5 + 3 + 2)$ or 28 | OE method | | UN11i | | | | | | | | | |
| | | 1 | 5 × their 28 OR 3 × their 28 OR 2 × their 28 | OE method FOL their 28 | | UN11i | | | | | | | | | |
| | | 1 | 140 OR 84 OR 56 OR 5 × their 28 AND 3 × their 28 AND 2 × their 28 | 140 OR 84 OR 56 implies 2 marks | | UN11i | | | | | | | | | |
| | | 1 | Fully correct table <table border="1" data-bbox="542 724 969 1038"> <thead> <tr> <th colspan="2">Tickets available</th> </tr> <tr> <th>Ticket Type</th> <th>Number Available</th> </tr> </thead> <tbody> <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> </tbody> </table> | Tickets available | | Ticket Type | Number Available | Standard | 140 | Premium | 84 | Luxury | 56 | Total | 280 |
| Tickets available | | | | | | | | | | | | | | | |
| Ticket Type | Number Available | | | | | | | | | | | | | | |
| Standard | 140 | | | | | | | | | | | | | | |
| Premium | 84 | | | | | | | | | | | | | | |
| Luxury | 56 | | | | | | | | | | | | | | |
| Total | 280 | | | | | | | | | | | | | | |

| 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 1 st mark | | UCM16ii |
| | | 1 | 3.14 \times 15 \times 0.56 or 26.376 OR Their 47.1 \times 0.56 or 26.376 OR 3.14 \times 15 \times 1.56 or 73.476 OR Their 47.1 \times 1.56 or 73.476 OR Their 47 \times 0.56 or 26.32 OR Their 47 \times 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 \times 0.56 or 98.91 OR 176.625 \times 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 \times 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 | $0.5 \times 11.5 \times 4.5$ | OE method to work out area of triangle | PS | UCM16i |
| | | 1 | 25.875 (m ²) | ACO Area Implies 1 st mark | | UCM16i |
| | | 1 | 12 (m ²) | ACO Median | | HID23i |
| | | 1 | Their $25.875 \times 3 \div$ 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 | $(30 \times 11) + (90 \times 36) + (150 \times 18) + (210 \times 5)$ 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 $7320 \div$ 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 $70 \div 4$ | | 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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