

Mark Scheme

| GCSE Mathematics and Numeracy Unit 1: Foundation Tier SAMs | Mark | Comments |
|--|----------------------------------|---|
| 1(a) (Wages) (£)750 (Balance after rent) (£)525 (Balance after sale of bike) (£)820 (Council tax) (£)114.35 | B1 B1 B1 B1 | FT ‘their 525’ + 295 correctly evaluated FT ‘their 820’ – 705.65 correctly evaluated |
| 1(b) 49 30 | B3 | Answer box takes precedence If B3 not awarded: Award B1 for 49 selected Award B2 for 30 selected or award B1 for 24 selected Penalise -1 if the 2 two-digit numbers are correct but in the wrong order. |
| 2(a) (Saundersfoot to St Govan’s Chapel=) 7 (hours) 20 (mins) or 440 (minutes) | B1 | Allow incorrect notation but penalise in OCW Allow 7:2(0) or 7.2(0) |
| (St Govan’s Chapel to Rhoscrowthor=) 5 (hours) 35 (mins) or 275 (minutes) | B1 | Allow 5:35 or 5.35 |
| (Rhoscrowthor to Pembroke=) 3 (hours) 45 (mins) or 3 ¼ (hours) or 225 (minutes) | B1 | Accept 3.45 Allow 3:45 or 3.45 |
| (Total time =) 7 (hours) 20 (mins) +5 (hours) 35 (mins) +3 (hours) 45 (mins) or equivalent | M1 | Award M1 for adding ‘their 3 times’ even if there is a mix of units and/or notation. FT ‘their 7 (hours) 20 (mins)’ + ‘their 5 (hours) 35 (mins)’ + ‘their 3 (hours) 45 (mins)’ or equivalent |
| (Total time =) 16 (hours) 40 (mins) | A1 | FT ‘their total time’ correctly evaluated and converted into hours and minutes Award A0 for 16:4(0) or 16.4(0) Award A0 for an answer of 15 (hours) 100 (mins) |
| Organisation and communication | OC1 | For OC1, candidates will be expected to: |
| | | • present their response in a structured way |
| | | • explain to the reader what they are doing at each step of their response |
| | | • lay out their explanations and working in a way that is clear and logical |
| | | • write a conclusion that draws together their results and explains what their answer means |
| Writing | W1 | For W1, candidates will be expected to: |
| | | • show all their working |
| | | • use correct mathematical form in their working |
| | | • use appropriate terminology, units, etc. |

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| <p>2(b) $(22 + 17 + 12) \times 1.6$</p> <p>81.6 (km)</p> | <p>M2</p> <p>A1</p> | <p>Award M1 for any one of the following</p> <ul style="list-style-type: none"> • $22 + 17 + 12$ • 51 (miles) |
| <p><i>2(b) Alternative method</i></p> <p>$(22 \times 1.6) + (17 \times 1.6) + (12 \times 1.6)$</p> <p>Or $(35.2 + 27.2 + 19.2)$</p> <p>81.6 (km)</p> | <p>M2</p> <p>A1</p> | <p>Award M1 for any one of the following</p> <ul style="list-style-type: none"> • The sum of any 2 of the 3 products • $22 \times 1.6 (= 35.2)$, $17 \times 1.6 (= 27.2)$ and $12 \times 1.6 (= 19.2)$ shown without being added |
| <p>3. $6 \times 31 + 3 \times 36$</p> <p>(186 + 108)</p> <p>(£)294</p> <p>$(434 - 294 =)$ (£)140</p> <p>$140 \div 28$</p> <p>5 (nights)</p> | <p>M1</p> <p>A1</p> <p>B1</p> <p>M1</p> <p>A1</p> | <p>FT 434 – ‘their 294’ provided M1 awarded</p> <p>FT ‘their derived 140’ $\div 28$</p> |
| <p>4. (Length of fencing needed=) $12 + 18 + 12$</p> <p>42 (m)</p> <p>(Number of panels $42 \div 1.5 =$) 28</p> <p>(Cost=) $28 \times (\text{£})36.99$</p> <p>(£)1035.72</p> | <p>M1</p> <p>A1</p> <p>B1</p> <p>M1</p> <p>A1</p> | <p>FT ‘their length of fencing’</p> <p>FT ‘their number of panels’</p> |
| <p><i>4. Alternative method</i></p> <p>(Number of panels on one side=)</p> <p>$(18 \div 1.5 =) 12$ OR $(12 \div 1.5 =) 8$</p> <p>(Total number of panels=) $8 + 12 + 8$</p> <p>28</p> <p>(Cost=) $28 \times (\text{£})36.99$</p> <p>(£)1035.72</p> | <p>B1</p> <p>M1</p> <p>A1</p> <p>M1</p> <p>A1</p> | <p>FT ‘their 12’ and ‘their 8’ provided B1 previously awarded</p> <p>CAO</p> <p>FT ‘their number of panels’</p> |

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|---|---|--|---------|--------|---------|--------------------|---|---------|----|-------|---|-------|---------|-------|---|-------|--------|---------|--|------|-------|-------|-------|---------|--------|---|------|-----|-----|-------|-----|---------|---|------|-----|-----|-------|-----|-------------|---|-------|-------|-------|-------|-----|--------------------|
| 5(a) Reason for statement 1 given based on vertical scale e.g. 'Consistent scale not used' 'Vertical scale not starting from zero' 'The scale should go from 0, then 10, then 20.' 'The scale has missed out 0' | E1 | Statements could be in either order. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Reason for statement 2 given based on width of bars e.g. 'the bar for the large shampoo is double the width for the medium shampoo but the heights are the same' 'Not all bars the same width' 'Large wider than the others' | E1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5(b) Method of comparison, e.g. per 10 ml or for 2000 ml, or divide the cost of 100 ml by 10 and multiply by 25 or 40, or similar Correctly evaluated comparison of 2 of the 3 sizes | M1 | Needs to show attempt to compare at least 2 of the 3 sizes | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Correctly evaluated comparison of all 3 sizes, may be different comparisons at different stages, AND conclusion 'Medium' or '250 ml' bottle is the best value for money | A1 | Ignore incorrect units <table><tr><td></td><td>100 ml</td><td>250 ml</td><td>400ml</td></tr><tr><td>S</td><td>(£1.60)</td><td>£4</td><td>£6.40</td></tr><tr><td>M</td><td>£1.40</td><td>(£3.50)</td><td>£5.60</td></tr><tr><td>L</td><td>£1.45</td><td>£3.625</td><td>(£5.80)</td></tr></table> <table><tr><td></td><td>1 ml</td><td>10 ml</td><td>50 ml</td><td>100ml</td><td>2000 ml</td><td>Per £1</td></tr><tr><td>S</td><td>1.6p</td><td>16p</td><td>80p</td><td>£1.60</td><td>£32</td><td>62.5 ml</td></tr><tr><td>M</td><td>1.4p</td><td>14p</td><td>70p</td><td>£1.40</td><td>£28</td><td>71.4(..) ml</td></tr><tr><td>L</td><td>1.45p</td><td>14.5p</td><td>72.5p</td><td>£1.45</td><td>£29</td><td>68.9(...) or 69 ml</td></tr></table> | | 100 ml | 250 ml | 400ml | S | (£1.60) | £4 | £6.40 | M | £1.40 | (£3.50) | £5.60 | L | £1.45 | £3.625 | (£5.80) | | 1 ml | 10 ml | 50 ml | 100ml | 2000 ml | Per £1 | S | 1.6p | 16p | 80p | £1.60 | £32 | 62.5 ml | M | 1.4p | 14p | 70p | £1.40 | £28 | 71.4(..) ml | L | 1.45p | 14.5p | 72.5p | £1.45 | £29 | 68.9(...) or 69 ml |
| | | 100 ml | 250 ml | 400ml | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | S | (£1.60) | £4 | £6.40 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | M | £1.40 | (£3.50) | £5.60 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| L | £1.45 | £3.625 | (£5.80) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 1 ml | 10 ml | 50 ml | 100ml | 2000 ml | Per £1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| S | 1.6p | 16p | 80p | £1.60 | £32 | 62.5 ml | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| M | 1.4p | 14p | 70p | £1.40 | £28 | 71.4(..) ml | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| L | 1.45p | 14.5p | 72.5p | £1.45 | £29 | 68.9(...) or 69 ml | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| A1 | With a 1 ml comparison, allow rounding to 1.5p for large but not for truncation to 1.4p, provided no incorrect working is seen, for the award of the first A1. Award of final A1 also possible if a full comparison and conclusion is 'Medium' Consistent units that are not obviously incorrect are required, or allow no units given Comparison of small / medium and medium / large IS a full comparison of all 3 sizes Comparison of medium / large and small / large IS a full comparison of all 3 sizes Comparison of small / medium and small / large IS NOT a full comparison of all 3 sizes | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6(a)(i) 23 ÷ 7 OR 16 ÷ 7 3(.2857...) AND 2(.2857...) (Number of layers =) 5 (Number of welsh cakes 3 × 2 × 5=) 30 | M1 A2 B1 B1 | Answers may be seen on diagram Award A1 for either 3(.2857...) or 2(.2857...) FT 'their 3' × 'their 2' × 'their number of layers' correctly evaluated | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

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| 6(a)(ii) $10 \times 23 \times 16$ 3680 cm ³ or ml | M1 A1 U1 | Independent of previous marks. Mark final answer Award M1 A1 U1 for an answer of 3.68 litres |
| 6(b) $15 \times 40 + 50$ (£)6.5(0) | M1 A2 | Allow £6.50p or 6.5(0) Award A1 for any of the following: <ul style="list-style-type: none"> • 6.50p • 650(p) • £6.5p |
| 7(a) Any 2 of the following statements e.g. 'No time frame e.g. per day, per week etc', 'Groups are not continuous e.g. no group for 1.5 hours', 'No group if you exercise for more than 7 hours' | E2 | Ignore additional spurious comments E1 for 1 correct statement |
| 7(b) A criticism regarding e.g. '(Not representative of Year 11 as a whole as) most GCSE PE pupils will do more than 2.5 hours of exercise each week', or '(Not representative of Year 11 as a whole as) not many of these pupils will do less than 2.5 hours of exercise each week', or 'Most GCSE PE pupils are likely to do more exercise than Yr 11 pupils in general' | E1 | Ignore additional spurious comments Accept e.g. 'Not a representative sample of Year 11', or 'Wouldn't represent Year 11 as a whole' |
| 8. (Electricity cost is) 660×0.29 or 660×29 $= (£) 191.4(0)$ or $19140 (p)$ (Standing charge + electricity is) $(£) 236.4(0)$ or $23640 (p)$ (Total bill including VAT is) $1.05 \times 236.4(0)$ or 1.05×23640 $= (£) 248.22$ or $24822 (p)$ | M1 A1 B1 M1 A1 | If units are given, they must be correct FT 45 + 'their 191.4(0)' or 4500 + 'their 19140' FT 'their (£) 236.4(0)' or 'their 23640 (p)' including if standing charge omitted Only FT if 5% has been added correctly to 'their (£) 236.4(0)' or 'their 23640 (p)' |
| 9(a) 5 (km) | B2 | B1 for any one of the following: <ul style="list-style-type: none"> • $3.6 + (3.6 - 2.2)$ allowing for 1 slip, possibly repeated, in reading the scale • $3.6 + 1.4$ allowing for a slip in the reading of 3.6 |
| 9(b) 11:12 | B2 | Accept 11:12 a.m. B1 for sight of 1 hour 12 minutes (or 1:12) |
| 9(c) (Average speed =) $3.6 \times 2 \div \frac{(10 + 15 + 20)}{60}$ or $\frac{7.2}{0.75}$ or equivalent | M2 | Allow M1 for any one of the following: <ul style="list-style-type: none"> • use of $7.2 \div$ 'their time', including use of 45 • use of $\div (10 + 15 + 20)$ • use of $\div 45$ • use of 0.75 |

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| $= 9.6 \text{ (km/h)}$ | A1 | FT from M1 for any one of the following: <ul style="list-style-type: none"> • $7.2 \div \text{'their time'}$, including use of 45, correctly evaluated • $\text{'their distance'} \div 0.75$ correctly evaluated |
| 10. $\frac{385 \times 5}{5 + 6} (\div 4)$ or $\frac{385 \times 6}{5 + 6} (\div 4)$ (Sian will save) (£) 43.75 AND (Kim will save) (£) 52.5(0) | M1 A2 | Answer space takes precedence A1 for any one of the following: <ul style="list-style-type: none"> • Correct answers but in the wrong order • (Sian will save) (£) 43.75 • Kim will save (£) 52.5(0) • (Sian) (£) 175 AND (Kim) (£) 210 |
| 11. (Volume of flowerbed =) $\frac{1}{2} \times (380 + 165) \times 213$ × 30 = 1741(.275) (litres) | M1 m1 A2 | A1 for 1741 275 (cm ³) |

How to read the mark scheme

- 'M' marks are awarded for any correct method applied to appropriate working, even though a numerical error may be involved. Once earned they cannot be lost.
- 'm' marks are dependant method marks. They are only given if the relevant previous 'M' mark has been earned.
- 'A' marks are given for a numerically correct stage, for a correct result or for an answer lying within a specified range. They are only given if the relevant M/m mark has been earned either explicitly or by inference from the correct answer.
- 'B' marks are independent of method and are usually awarded for an accurate result or statement.
- 'S' marks are awarded for strategy
- 'E' marks are awarded for explanation
- 'U' marks are awarded for units
- 'P' marks are awarded for plotting points
- 'C' marks are awarded for drawing curves
- 'OC' marks are awarded for 'organising and communicating', a strand of OCW (organising, communicating and writing accurately)
- 'W' marks are awarded for 'writing accurately', a strand of OCW (organising, communicating and writing accurately)
- 'SC' marks are awards for special cases
- CAO: correct answer only
- ISW: ignore subsequent working
- FT: follow through

Assessment mapping

| Q. | Topic | Max mark | AO1 | AO2 | AO3 | Common Qn (HT) | Common marks (HT) | OCW |
|----|---|-----------|-----------|-----------|-----------|----------------|-------------------|-----|
| 1 | Noor's statement and online banking | 7 | 7 | | | | | |
| 2 | Wales coastal path walk - time and distance | 10 | 3 | 7 | | | | * |
| 3 | Ceri's family camping holiday | 5 | | | 5 | | | |
| 4 | Perimeter fencing costs | 5 | | 5 | | | | |
| 5 | Best buy shampoo | 5 | | 5 | | | | |
| 6 | Welsh cakes - dimensions, volume and delivery charges | 11 | 6 | | 5 | | | |
| 7 | PE Questionnaire | 3 | 3 | | | 2 | 3 | |
| 8 | Mr Bevan's electricity bill | 5 | | 5 | | 3 | 5 | |
| 9 | Nerys' travel graph | 7 | | 4 | 3 | 4 | 7 | |
| 10 | Saving to buy a guitar - ratio | 3 | | 3 | | 5 | 3 | |
| 11 | Flowerbed - vol trap prism | 4 | 4 | | | 8a | 4 | |
| | Totals | 65 | 23 | 29 | 13 | | 22 | |