| MATHEMATICS - NUMERACY $2^{\text {nd }}$ SAMs 2017 Unit 2 (Calculator allowed) Foundation Tier | Mark | MARK SCHEME Comments (Page 1) |
| :---: | :---: | :---: |
| 1. (a) Cabbage 8, Peas 13, Sprouts 6, Broccoli 3 | B2 | May be inferred from their bar chart. B1 for any two/three correct frequencies. If frequencies score 0 , then give B1 for all 4 correct tallies. |
| Both axes labelled, e.g. frequency or number of people along one axis and Cabbage, Peas, Sprouts, Broccoli along the other axis (or on the bars), anywhere within the base (inc) of the corres. bar AND uniform scale for the frequency axis starting at 0 . | B2 | B1 if no scale but allow one square to represent 1 <br> OR B1 if not labelled as 'frequency' or similar. <br> If frequency scale starts with 1 at the top of the first square the starting at 0 will be implied for this axis. <br> Condone frequency values alongside |
| Four bars at correct heights (bars must be of equal width). Can be in any order. | B2 | square instead of at the top of the squares. <br> FT their frequencies throughout. FT their scale. <br> B1 for any 2 or 3 correct bars on FT. |
| (b) Suitable reason given linked to organising and/or collecting her data in a methodical way. | E1 |  |
| (c) Peas | B1 |  |
| (d) 3/30 or equivalent | $\begin{gathered} \text { B1 } \\ 9 \end{gathered}$ | ISW |
| 2. (a) 6 rectangles, measuring 6 cm by 8 cm , correctly drawn or stated. | B2 | Award B1 for 2, 3, 4 or 5 rectangles correctly drawn. |
| (b) $120 \div 6$ 20 (pieces of card) | $\begin{aligned} & \text { M1 } \\ & \text { A1 } \end{aligned}$ | FT their number of rectangles. |
|  | 4 |  |
| 3. (earnings) ( $32 \times 6.50=$ ) (£)208 | B1 | CAO |
| (Tax \& NI )(1/10 of 208=) (£)20.8(0) | B1 | FT 'their 208' |
| (Total outgoings) (20.8(0) $+50+60=$ ) (£)130.8(0) | B1 | FT 'their 20.8(0)' |
| (Has left) (208-130.8(0)=) (£)77.2(0) | B1 | FT 'their 130.8(0)' |
| (Number of weeks) ( $419 \div 77.2(0)=5.427 \ldots$.. 6 | B2 | B1 for 5(.427) weeks. <br> FT 'their 77.2(0)' for equivalent difficulty |
| Organisation and communication | OC1 | Alternative method |
| Accuracy of writing | W1 | $\begin{aligned} & \text { Earnings }=208 \quad \text { B1 } \\ & \text { Tax }=20.80 \quad \text { B1 } \\ & (208-20.80=) 187.20 \quad \text { B1 } \\ & \text { Has left } 77.20 \quad \text { B1 } \quad \text { FT 'their 187.20' } \\ & -50-60 \\ & \text { Number of weeks }=6 \text { weeks B2 FT } \\ & \text { their } 77.2(0) \quad \text { B1 for } 5(.427) \text { weeks } \end{aligned}$ |
|  | 8 |  |
| $\begin{aligned} & \text { 4. (a) }(\text { area }=) 45 \times 25 \\ & 1125\left(\mathrm{~m}^{2}\right) \\ & \text { (Cost }=) 1125 \times(£) 85 \\ & \text { (£) } 95625 \end{aligned}$ | M1 <br> A1 <br> M1 <br> A1 <br> 4 | FT 'their area' <br> If no marks awarded, award SC2 for sight of (£) 11900 <br> OR award SC1 for $\times 85$ correctly |
| $5.41 / 2 \times 40=180$ <br> (Cooking time =) 180 mins (or 3 hrs ) +25 mins $=205 \mathrm{mins}$ or 3 hours 25 mins (Chef begins cooking at) 10.05 (am) | $\begin{gathered} \text { B1 } \\ \text { M1 } \\ \text { A1 } \\ \text { B1 } \\ 4 \\ \hline \end{gathered}$ | FT 'their 180' <br> FT their cooking time |


| MATHEMATICS - NUMERACY $2^{\text {nd }}$ SAMs 2017 Unit 2 (Calculator allowed) Foundation Tier | Mark | MARK SCHEME Comments (Page 2) |
| :---: | :---: | :---: |
| 6 . Use of 30 teabags (for $£ 1.80$ ) Method to compare, e.g. multiples of $30 \& 40$ : $30,60,90,120 \& 40,80,120$ $4 \times 1.8(0) \text { and } 3 \times 2.60$ <br> (£)7.2(0) and (£)7.8(0) or equivalent <br> Offer A (20 teabags + 50\% free) is better value |  | OR equivalent, e.g. 1 or 10 teabags considered for both bags of 30 \& 40 OR $1() .80 \div 3(0)$ and $2() .60 \div 4(0)$ with consistent place value to compare OR 60(p for 10) and 65(p for 10) with consistent place value to compare OR 60(p for 10) and (£) 2(.)60-(£)1(.)80 = 80p for extra 10 OR 2.40 for 40 OR $1.80 \div 30 \times 40$ OR $1.80 \div 3 \times 4$ OR $60(p)$ for 10 and 80(p) for extra 10. <br> Depends on M1, m1 awarded with appropriate FT <br> Accept answers suggesting 'depends if you need 40 teabags exactly' etc. provided M1, m1, A1 previously awarded. <br> SC1 for an answer based on comparison of 20 teabags for $£ 1.80$ with 40 teabags for $£ 2.60$, appropriate working with conclusion of 40 teabags |
| 7.(a) 150  <br> (b)  325 | $\begin{aligned} & \text { B1 } \\ & \text { B1 } \\ & \\ & \hline 2 \\ & \hline \end{aligned}$ |  |
| 8.(a) $7 \mathrm{~cm}( \pm 0.2 \mathrm{~cm}) \times 8(\div 100)$ $0.56 \text { (m) }$ <br> (b) Measuring 2 appropriate angles $\left( \pm 2^{\circ}\right)$ to check interior (allied), or appropriate corresponding or alternate angles <br> Conclusion based on the angles measured and accurate knowledge of parallel line angle facts. | M1 <br> A1 <br> B1 <br> E1 <br> 4 | Award M1 only for answers 56 cm or 56 m or 56 or similar from $\pm 0.2 \mathrm{~cm}$ tolerance <br> The size of angles may not actually be recorded, e.g. on diagram equal angles marked $x$ and $y$. <br> Accept references to the angles which are equal or sum to $180^{\circ}$ <br> Do not accept 'travelling in the same direction so won't meet' |


| MATHEMATICS - NUMERACY $2^{\text {nd }}$ SAMs 2017 Unit 2 (Calculator allowed) Foundation Tier | Mark | MARK SCHEME Comments (Page 3) |
| :---: | :---: | :---: |
| 9.(a)  <br> (b) $£ 480$ <br> 1620  | $\begin{aligned} & \hline \text { B1 } \\ & \text { B1 } \end{aligned}$ |  |
| (c)(i) Paying for 10 m | B1 | If not awarded, FT use of 9m throughout |
| $11 \times 1 \mathrm{mth}(11 \times 10 \times 40 \times 1.2=)$ <br> (£)5280 <br> $12 m$ th charge $(320 \times 10 \times 1.2=)$ <br> (£) 3840 | B2 | B1 for either correct, or if neither correct award for excluding VAT charges of ( $£ 4400$ and ( $£$ ) 3200 respectively |
| $6 \mathrm{mth}+5 \times 1 \mathrm{mth} \quad 180 \times 10+5 \times 40 \times 10 \quad(\times 1.2)$ <br> (£) 4560 | $\begin{aligned} & \text { M1 } \\ & \text { A1 } \end{aligned}$ | Accept excluding VAT (£3800) |
| Conclusion to pay annual charge based on the calculation of all 3 possibilities | E1 | FT appropriate conclusion depending on the sight of any two of the 3 correct charges given including VAT <br> If misread not using 'per metre' consistently, hence MR-1, then BO, then FT throughout |
| (ii) Greatest saving (£5280-£3840-) (£)1440 | B1 | FT their least of 3 possibilities subtracted correctly from their greatest of 3 possibilities |
| 10.(a) 5.5 (metres) | B1 | Accept answers in the range 5.4 to 5.6 inclusive |
| (b) Intention to read horizontal scale for depth of 3m filling | M1 | Accept sight of 0.6 (hours) |
| 36 (minutes) | A1 |  |
| (c) $13(:) 36$ or 136 pm AND 18(:) 36 or 636 pm | B2 | B1 for either correct, or B1 if both given with incorrect time notation or B1 for two times given that are 5 hours apart e.g. 14:36 and 19:36, i.e. FT 'their first time' +5 hours for second B1. |
| (d) $4^{\text {th }}$ statement identified | B1 | B0 if more than one statement identified. |
|  | 6 |  |
| 11.(a) $9 \times 10+160=250$ or equivalent $50\left({ }^{\circ} \mathrm{F}\right)$ | $\begin{aligned} & \text { M1 } \\ & \text { A1 } \end{aligned}$ |  |
| (b) $9 \mathrm{c}=5 \mathrm{f}-160$ | B1 | FT until $2^{\text {nd }}$ error |
| $c=\frac{5 f-160}{9} \text { or } c=\frac{5}{9}(f-32)$ | B1 |  |
|  | 4 |  |
| 12. (a)(i) $253\left(^{\circ}\right.$ ) | B1 |  |
| (ii) 360-42 | M1 |  |
| $=318\left({ }^{\circ}\right)$ | A1 | SC1 for answers of 073( ${ }^{\circ}$ ) and $138\left(^{\circ}\right.$ ) in (i) and (ii) |
| (b) $60^{\circ}$ with construction arcs | M1 | Accept anywhere on the line Allow sight of construction arcs for $60^{\circ}$ |
| ( $30^{\circ} \mathrm{by}$ ) bisecting 'their angle', with arcs shown | M1 | Line (road) may not be shown |
| Correct $30^{\circ}$ from appropriate construction with line shown at the right hand end of the given line | A1 6 | Depends on both M marks |

