

| Q | Answer | Mark | Comments |
|----------|---------------|-------------|-----------------|
| 1 | 8 | B1 | |

| Q | Answer | Mark | Comments |
|----------|---------------|-------------|-----------------|
| 2 | -6 | B1 | |

| Q | Answer | Mark | Comments |
|----------|---------------|-------------|-----------------|
| 3(a) | 60(%) | B1 | |

| Q | Answer | Mark | Comments |
|----------|---------------|-------------|-----------------|
| 3(b) | 20(%) | B1 | |

| Q | Answer | Mark | Comments |
|---|---------------|-------------|-----------------|
| 4(a) | 18 | B1 | |
| Additional Guidance | | | |
| Embedded answer with no or incorrect answer eg $\frac{18}{3} = 6$ | | | B0 |

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|---|--|-------------|--|
| | $2x = 27 - 3$ or $2x = 24$ or $\frac{27-3}{2}$ or $\frac{24}{2}$ or $x + 1.5 = 13.5$ | M1 | oe eg $2x + 3 = 27$ $- 3 \quad - 3$ or $-2x = 3 - 27$ or $-2x = -24$ |
| 4(b) | 12 | A1 | |
| Additional Guidance | | | |
| Embedded answer with no or incorrect answer eg $2 \times 12 + 3 = 27$ without 12 selected or with incorrect answer | | M1A0 | |
| Trial and improvement with answer 12 | | M1A1 | |
| Trial and improvement with no answer or answer other than 12 | | M0A0 | |

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|----------------------------|---------------|-------------|-----------------|
| | 2.25 | B1 | |
| Additional Guidance | | | |
| | 2.25% | B0 | |

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|----------|--|-------------|--|
| 6 | 286.28 | B1 | |
| | 311.28 | B1ft | correct or ft their $286.28 + 25.00$ |
| | 2141.57 | B1ft | correct or ft their $311.28 + 1830.29$ |
| | Additional Guidance | | |
| | Mark the answer lines and ignore any numbers in the grey cells | | |
| | Ignore units | | |
| | 286.28 | | B1 |
| | 261.28 | | B0 |
| | 2091.57 | | B1ft |
| | 1186.28 | | B0 |
| | 1211.28 | | B1ft |
| | 3041.57 | | B1ft |

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|-----------------------------|--|-------------|-----------------|----|---|---|----|---|----|---|----|--|
| 7 | <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td>4</td><td>3</td><td>10</td></tr> <tr> <td>5</td><td>2</td><td>12</td></tr> <tr> <td>6</td><td>20</td><td>1</td></tr> </table> | 4 | 3 | 10 | 5 | 2 | 12 | 6 | 20 | 1 | B3 | B2 3 or 4 correct B1 1 or 2 correct |
| 4 | 3 | 10 | | | | | | | | | | |
| 5 | 2 | 12 | | | | | | | | | | |
| 6 | 20 | 1 | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| Additional Guidance | | | | | | | | | | | | |
| Mark the grid | | | | | | | | | | | | |
| Ignore repeats for B1 or B2 | | | | | | | | | | | | |

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| 8(a) | 60 | B1 | |

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|-----------------------------|--|------|---|-----|-----------------|-----|-----------------|-----|-----------------|--|--|
| Alternative method 1 | | | | | | | | | | | |
| | Correct reading(s) taken from one or more number(s) of pounds and correct calculation to scale up | M1 | eg 1200×5 or $1200 \times 4 + 600 \times 2$ | | | | | | | | |
| | 6000 | A1 | | | | | | | | | |
| Alternative method 2 | | | | | | | | | | | |
| | $500 \times \frac{720}{\text{their } 60}$ or 500×12 | M1 | oe | | | | | | | | |
| | 6000 | A1ft | correct or ft their 60 | | | | | | | | |
| Additional Guidance | | | | | | | | | | | |
| 8(b) | A correct ft answer implies both marks eg1 answer 62 in (a) and answer 5806(.45) or 5806.5 in (b) eg2 answer 72 in (a) and answer 5000 in (b) | | M1A1ft M1A1ft | | | | | | | | |
| | Further work eg $1200 \times 5 + 100 \times 5$ | | M0A0 | | | | | | | | |
| | For information: | | M1 | | | | | | | | |
| | <table border="1"> <tr> <td>£100</td> <td>1200×5</td> </tr> <tr> <td>£50</td> <td>600×10</td> </tr> <tr> <td>£20</td> <td>240×25</td> </tr> <tr> <td>£10</td> <td>120×50</td> </tr> </table> | £100 | 1200×5 | £50 | 600×10 | £20 | 240×25 | £10 | 120×50 | | |
| £100 | 1200×5 | | | | | | | | | | |
| £50 | 600×10 | | | | | | | | | | |
| £20 | 240×25 | | | | | | | | | | |
| £10 | 120×50 | | | | | | | | | | |

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|-------------|---|-------------|-----------------|
| 9(a) | 390 or 1480 | M1 | |
| | 1870 | A1 | |
| | Additional Guidance | | |
| | Answer only | | |
| | Ignore calculation of 1864 but 1870 only coming from incorrect rounding of 1864 is M0 | | |

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|-------------|--|-------------|---|
| 9(b) | Valid explanation referring to both of the original numbers being rounded up | B1 | eg he rounded each number up or each rounded number is bigger than the actual number or 390 is bigger than 385 and 1480 is bigger than 1479 |
| | Additional Guidance | | |
| | Ignore irrelevant, non-contradictory statements | | |
| | Ignore 1864 alongside a correct explanation | | |
| | Incorrect rounding or values seen in this part even alongside a correct explanation | | |
| | The numbers are rounded up (to the nearest 10) | | |
| | 385 became 390 and 1479 became 1480 | | |
| | One number increased 5 and the other 1 (so it will be 6 bigger) | | |
| | 385 became 390 and 1479 became 1500 | | |
| | The numbers are rounded to the nearest 10 | | |
| | It's rounding so the answer is bigger | | |
| | 1870 is bigger than 1864 | | |

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|----------|--|-------------|------------------------------|
| 10(a) | $(18300 + 20700 + 21500 + 21500 + 21500 + 99000) \div 6$ or $202500 \div 6$ | M1 | oe allow missing brackets |
| | 33750 | A1 | SC1 120000 or [30166, 30167] |
| | Additional Guidance | | |
| | Correct answer followed by rounding eg 33750 followed by 30000 | M1A1 | |
| | Special cases are for missing brackets or omitting one 21500 | | |
| | Addition signs between the numbers with an attempt at a total implies addition | | |
| | A vertical column of the 6 numbers with an attempt at a total implies addition | | |
| | Allow misreads but must be dividing by 6 | | |
| | Accept incorrect money notation for the mean eg1 33750.0 eg2 30166.6 | M1A1 SC1 | |

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|-------|---|------|--|--|
| 10(b) | Valid explanation | B1 | accept any indication that one of the values is non-typical, or that the mean would be non-typical | |
| | Additional Guidance | | | |
| | Ignore any attempt to state the best average | | | |
| | Ignore irrelevant, non-contradictory statements | | | |
| | Accept any indication that 99 000 is significantly different | | | |
| | One is an outlier / anomaly / is an odd one out / doesn't fit | B1 | | |
| | The large value boosted the average | B1 | | |
| | The average is too large | B1 | | |
| | (Five are below / most are below and) only one is above the mean | B1 | | |
| | Five are below / most are below (and only one is above) the mean | B1 | | |
| | 99 000 / one number is much bigger | B1 | | |
| | 99 000 / one number is bigger | B0 | | |
| | The range is too large | B0 | | |
| | The numbers are all different | B0 | | |
| | Some numbers are much bigger | B0 | | |
| | Some of the numbers are the same | B0 | | |
| | It is an estimate / it's not exact / it's not accurate | B0 | | |

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| 11 | 55×2.2 or 121 | M1 | oe |
| | their $121 \div 14$ or 8.6(...) or 121 and $(8 \times 14 =) 112$ | M1dep | oe |
| | 8 stones 9 pounds | A1 | SC2 8 stones 6 pounds |
| | Additional Guidance | | |
| | Answer of 8 stones 6 pounds (from incorrect conversion of 8.6...) | | SC2 |
| | Answer 8.6... stones 121 pounds | | |

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|--------------|---|-------------|-----------------------------|
| 12(a) | 80×6 or 480 or 80×7 or $480 + 80$ | M1 | oe implied by $80 : 480$ |
| | 560 | A1 | |

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|--------------|--|-------------|-----------------|
| 12(b) | $\frac{1}{15}$ | B1 | oe fraction |
| | Additional Guidance | | |
| | Decimal, percentage or ratio answer | | B0 |
| | Do not allow 1 in 15 or 1 out of 15 unless the correct fraction seen | | |
| | $\frac{6}{100}$ or $\frac{7}{100}$ or $\frac{6.6}{100}$ or $\frac{6.7}{100}$ | | B0 |

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|-------|---|------|--|
| 13(a) | $6y = y + 15$ | B2 | correct single equation with $6y$ and $y + 15$ eg $15 + y = y \times 6$ B1 $6y$ or $y + 15$ or rearranged equation eg $6y - 15 = y$ or $5y = 15$ but not $y = 3$ only |
| | Additional Guidance | | |
| | $6y + 15$ or $6y + 15y$ or $6(y + 15)$ | | |
| | Allow any variable for B1 but must be consistent for B2 | | |
| | Allow unprocessed terms for B1 or B2 eg $6 \times y$ or $y6$ | | |
| | $6y = y + 15$ seen, but then correctly simplified or solved | B2 | |
| | $6y = y + 15$ seen, but then incorrectly simplified or solved | B1 | |
| | $6y = 18$ or $y + 15 = 18$ or both (unless combined to a single equation) | B1 | |
| | No work worth B2 or B1 and answer $y = 3$ | B0 | |

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|-------|--|------|--|
| 13(b) | Alternative method 1: substitutes $y = 4$ into both sides | | |
| | (6y =) 24 and (y + 15 =) 19 | B1ft | oe eg $4 \times 6 = 24$ and $4 + 15 = 19$ correct or ft their equation if their equation has a term in y on each side |
| | Alternative method 2: solves equation | | |
| | (y =) 3 | B1ft | oe eg $3 \times 6 = 18$ and $3 + 15 = 18$ correct or ft their equation if their equation has a term in y on each side |
| | Additional Guidance | | |
| | Allow any variable | | |
| | Only allow (y =) 3 seen in (a) if referenced in (b) and not contradicted | B1 | |
| | For Alt 1, accept substituting into one side and then equating and solving the other eg $4 \times 6 = 24$ and $24 - 15 = 9$ | B1 | |

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| 14 | 18.5(0) \times 2 or 37 | M1 | implied by 18.5(0) \times 84 or 1554 |
| | 42 \div 15 or $\frac{14}{5}$ or 2.8 or 3 | M1 | minibuses needed implied by 3 \times 450 or 1350 or 3 \times 26 or 78 |
| | 450 \times their 3 + 26 \times their 3 or 1350 + 78 or 476 \times 3 or 1428 | M1dep | oe dep on 2nd mark allow their 3 to be a decimal eg 2.8 1332.8 scores 2nd & 3rd marks 2982 or 2886.8 scores M3 |
| | their 1428 \div 42 + their 37 or (their 1428 + 42 \times their 37) \div 42 or 2982 \div 42 | M1dep | oe eg (450 \times their 3 + 26 \times their 3 + 42 \times their 37) \div 42 dep on M3 |
| | 71(00) | A1 | SC4 52.50 SC3 52.5 |
| Additional Guidance | | | |
| Up to M4 may be awarded for correct work with no answer or incorrect answer, even if this is seen amongst multiple attempts | | | |
| Using 2.8 throughout gives an answer of 68.73(...) | | | M4A0 |
| Only 1 game of golf gives an answer of 52.50 | | | SC4 |
| 1350 + 78 may be seen embedded with an incorrect number of games of golf eg (1350 + 78 + 37) \div 42 | | | M1M1M1M0 |

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| | $\frac{1}{6}$ or 0.16(6...) or 0.167 or 0.17 or 16(.6...)% or 16.7% or 17% | B1 | oe fraction |
| Additional Guidance | | | |
| 15 | Ignore conversion attempt to fraction, decimal or percentage (but not ratio) after correct probability seen | | |
| | Do not allow eg 1 in 6 or 1 out of 6 unless the correct probability seen | | |
| | Do not allow ratio | | |
| | Ignore words if correct probability seen | | |

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|----------------------------|-----------------------|-------------|-----------------|
| | 1 : 16 or $1^2 : 4^2$ | B1 | oe ratio |
| Additional Guidance | | | |
| 16 | $1r : 16w$ | | B0 |

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|----------------------------|--|-------------|---|
| | 2 by 4 or 4 by 2 rectangle drawn | B1 | accept overlap with given rectangle mark intention |
| Additional Guidance | | | |
| 17(a) | Ignore shading and internal lines | | |
| | If more than one shape drawn apply the rules of choice | | |

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|----------------------------|---|-------------|---|
| | Rectangle with dimensions in ratio 1 : 2 or 2 : 1, but not 2 by 4 or 4 by 2 | B1 | accept overlap with given rectangle mark intention |
| Additional Guidance | | | |
| 17(b) | Ignore shading and internal lines | | |
| | If more than one shape drawn apply the rules of choice | | |

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|----------------------------|---|------|--|------|------|----|----|------|----|---|----|--|
| | $36 \times \frac{4}{9} \text{ or } 16 \text{ (Soft)}$ $\text{or } 36 \times \frac{5}{9} \text{ or } 20 \text{ (Hard)}$ $\text{or } 36 \times \frac{1}{3} \text{ or } 12 \text{ (Dark)}$ $\text{or } 36 \times \frac{2}{3} \text{ or } 24 \text{ (Milk)}$ | M1 | oe implied by the numbers in the relevant row or column making the correct total accept 16 seen in Milk Soft accept 12 in Dark Hard | | | | | | | | | |
| | <table border="1" data-bbox="255 676 727 900"> <thead> <tr> <th></th> <th>Hard</th> <th>Soft</th> </tr> </thead> <tbody> <tr> <td>Milk</td> <td>13</td> <td>11</td> </tr> <tr> <td>Dark</td> <td>7</td> <td>5</td> </tr> </tbody> </table> | | Hard | Soft | Milk | 13 | 11 | Dark | 7 | 5 | A3 | A2 two of Milk Soft = 11, Dark Hard = 7 and Milk Hard = 13 A1 Milk Soft = 11 or Dark Hard = 7 |
| | Hard | Soft | | | | | | | | | | |
| Milk | 13 | 11 | | | | | | | | | | |
| Dark | 7 | 5 | | | | | | | | | | |
| Additional Guidance | | | | | | | | | | | | |
| 18(a) | <table border="1" data-bbox="255 1012 727 1237"> <thead> <tr> <th></th> <th>Hard</th> <th>Soft</th> </tr> </thead> <tbody> <tr> <td>Milk</td> <td>10</td> <td>11</td> </tr> <tr> <td>Dark</td> <td>7</td> <td>5</td> </tr> </tbody> </table> | | Hard | Soft | Milk | 10 | 11 | Dark | 7 | 5 | | M1A2 |
| | Hard | Soft | | | | | | | | | | |
| Milk | 10 | 11 | | | | | | | | | | |
| Dark | 7 | 5 | | | | | | | | | | |
| | <table border="1" data-bbox="255 1260 727 1484"> <thead> <tr> <th></th> <th>Hard</th> <th>Soft</th> </tr> </thead> <tbody> <tr> <td>Milk</td> <td>10</td> <td>11</td> </tr> <tr> <td>Dark</td> <td>10</td> <td>5</td> </tr> </tbody> </table> | | Hard | Soft | Milk | 10 | 11 | Dark | 10 | 5 | | M1A1 |
| | Hard | Soft | | | | | | | | | | |
| Milk | 10 | 11 | | | | | | | | | | |
| Dark | 10 | 5 | | | | | | | | | | |
| | For M1 the values must be seen outside the table or implied by the table but also accept 16 seen in Milk Soft or 12 in Dark Hard <table border="1" data-bbox="255 1596 727 1810"> <thead> <tr> <th></th> <th>Hard</th> <th>Soft</th> </tr> </thead> <tbody> <tr> <td>Milk</td> <td>10</td> <td>16</td> </tr> <tr> <td>Dark</td> <td>5</td> <td>5</td> </tr> </tbody> </table> | | Hard | Soft | Milk | 10 | 16 | Dark | 5 | 5 | | M1 |
| | Hard | Soft | | | | | | | | | | |
| Milk | 10 | 16 | | | | | | | | | | |
| Dark | 5 | 5 | | | | | | | | | | |

| Q | Answer | Mark | Comments |
|--------------|---|-------------|---|
| 18(b) | $\frac{5}{36}$ or $0.13\dot{8}$ or $13.\dot{8}\%$ | B1 | oe fraction, decimal or percentage accept rounding to 2 sf or better |
| | Additional Guidance | | |
| | Ignore incorrect simplification or conversion attempt to fraction, decimal or percentage (but not ratio) after correct probability seen | | |
| | Do not allow eg 5 in 36 or 5 out of 36 unless the correct probability seen | | |
| | Do not allow ratio | | |
| | Ignore words if correct probability seen | | |

| Q | Answer | Mark | Comments |
|--------------|---|-------------|--|
| 18(c) | $\frac{\text{their 20}}{36}$ or $\frac{5}{9}$ or $0.5\dot{5}$ or $55.\dot{5}\%$ | B1ft | oe fraction, decimal or percentage correct or ft their Hard total from the table accept rounding to 2 sf or better |
| | Additional Guidance | | |
| | Ignore incorrect simplification or conversion attempt to fraction, decimal or percentage (but not ratio) after correct probability seen | | |
| | Do not allow eg 20 in 36 or 20 out of 36 unless the correct probability seen | | |
| | Do not allow ratio | | |
| | Ignore words if correct probability seen | | |

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| 19 | Alternative method 1 | | |
| | Rotation | B1 | |
| | 180° or half turn | B1 | ignore clockwise or anticlockwise |
| | Origin or (0, 0) or O | B1 | |
| | Alternative method 2 | | |
| | Enlargement | B1 | |
| | (Scale factor) -1 | B1 | |
| | Origin or (0, 0) or O | B1 | |
| | Additional Guidance | | |
| | Accept eg rotate for rotation and condone rotational symmetry | | |
| | Do not accept turn for first B1 | | |
| | Accept 180 for 180° | | |
| | Accept 0, 0 for origin | | |
| | Do not accept centre of grid for origin | | |
| | Reflection on (0, 0) | | B0B0B1 |
| | Choice of transformations eg rotation (and) $\begin{pmatrix} 4 \\ 4 \end{pmatrix}$ or rotation (and) flip | | 1st B0 |
| | Combined transformation | | max B0B1B1 |

| Q | Answer | Mark | Comment |
|---|--|-------------|---|
| 20 | 12.9^2 or 166.41 and 17.2^2 or 295.84 | M1 | implied by 462.25 or 129.43 or $\sqrt{129.43}$ or 11.37... or 11.38 or 11.4 |
| | $\sqrt{12.9^2 + 17.2^2}$ or $\sqrt{166.41 + 295.84}$ or $\sqrt{462.25}$ | M1dep | |
| | 21.5 | A1 | oe |
| Additional Guidance | | | |
| Correct answer with no working | | | M1M1A1 |
| 21.5 with error seen is A0 eg $\sqrt{12.9^2 + 17.2^2} = \sqrt{461.95}$ Answer 21.5 | | | M1M1A0 |
| Answer from trigonometry or drawing | | | M0M0A0 |

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| 21 | 21 + 58 or 79 | M1 | may be marked on diagram |
| | 079 | A1 | |
| | Additional Guidance | | |
| 21 + 58 followed by further work leading to the answer eg $21 + 58 = 79$, $90 - 79 = 11$ | | | M0A0 |

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| 22 | 9 | B1 | |

| | Answer | Mark | Comment |
|--|--|-------|--|
| Alternative method 1: price of buying 8 from each shop | | | |
| 23 | 2.39×8 or 19.12 | M1 | oe shop A |
| | $3.08 \times 4 + 3.08 \div 2 \times 4$ or 18.48 | M1 | oe shop B |
| | $11.4 \div 6$ or 1.9(0) or $11.4 \times 2 \div 6$ or 3.8(0) | M1 | oe shop C |
| | 11.4×2 – their 1.9(0) $\times 2$ or 11.4×2 – their 3.8(0) or 19(.00) | M1dep | oe dep on previous mark $11.4 \times \frac{5}{6} \times 2$ oe scores 3rd & 4th marks |
| | B and 18.48 with 19.12 and 19(.00) seen | A1 | |
| Alternative method 2: compares price of individual sticks first | | | |
| | $3.08 \times 1.5 \div 2$ or 2.31 | M1 | oe shop B |
| | $(11.4 \div 4) \div 6$ or 0.47(5) or 0.48 | M1 | oe shop C |
| | $11.4 \div 4$ – their 0.475 or 2.37(5) or 2.38 | M1dep | oe dep on previous mark $11.4 \times \frac{5}{6} \div 4$ oe scores 2nd & 3rd marks |
| | their 2.31×8 or 18.48 with M3 awarded | M1dep | oe |
| | B and 18.48 with 2.31 and 2.37(5) or 2.38 seen | A1 | |

Mark scheme and Additional Guidance continue on the next page

| | | | |
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| 23 cont | Alternative method 3: compares the price of 4 sticks first | | |
| | 2.39 × 4 or 9.56 and 3.08 × 1.5 × 2 or 9.24 | M1 | oe shops A and B |
| | 11.4 ÷ 6 or 1.9(0) | M1 | oe shop C |
| | 11.4 – their 1.9(0) or 9.5(0) | M1dep | dep on previous mark $11.4 \times \frac{5}{6}$ oe scores 2nd & 3rd marks |
| | their 9.24 × 2 or 18.48 with M3 awarded | M1dep | oe |
| | B and 18.48 with 9.56 and 9.24 and 9.5(0) seen | A1 | |
| | Alternative method 4: compares the price of 2 sticks first | | |
| | 2.39 × 2 or 4.78 and 3.08 × 1.5 or 4.62 | M1 | oe shops A and B |
| | (11.4 ÷ 2) ÷ 6 or 0.95 | M1 | oe shop C |
| | 11.4 ÷ 2 – their 0.95 or 4.75 | M1dep | dep on previous mark $11.4 \times \frac{5}{6} \div 2$ oe scores 2nd & 3rd marks |
| | their 4.62 × 4 or 18.48 with M3 awarded | M1dep | oe |
| | B and 18.48 with 4.78 and 4.62 and 4.75 seen | A1 | |

Additional Guidance continues on the next page

| Additional Guidance | | | | | | | | | | | | | | | | | | | | | |
|----------------------------|---|-------------------|-------------------|-------------------|-------------------|-------------------|---|------|------|------|-------|---|------|------|------|-------|---|-----------------|------|--------|---------|
| 23 cont | Up to M4 may be awarded for correct work with no answer or incorrect answer, even if this is seen amongst multiple attempts | | | | | | | | | | | | | | | | | | | | |
| | Use the scheme which gives the highest mark | | | | | | | | | | | | | | | | | | | | |
| | NB The 4th mark in Alts 2, 3 and 4 does not imply any earlier marks Either the method or values must have been seen and awarded for the first 3 marks in order to give this mark However 18.48 always implies M1 by Alt 1 | | | | | | | | | | | | | | | | | | | | |
| | If students use different numbers of sticks for different shops do not combine marks from different schemes but note that there are possible valid methods that compare eg 2 sticks from A and B and then 4 sticks from B and C (escalate if seen) | | | | | | | | | | | | | | | | | | | | |
| | All schemes can be oe in pence and allow work in a mix of pounds or pence for up to M4 | | | | | | | | | | | | | | | | | | | | |
| | Allow $\times 0.16(6\dots)$ or $\times 16(.6\dots)\%$ or $\times 0.167$ or $\times 16.7\%$ or $\times 0.17$ or $\times 17\%$ if seen for method for one sixth for shop C but must recover to given values for A mark | | | | | | | | | | | | | | | | | | | | |
| | Allow $\times 0.83(3\dots)$ or $\times 83(.3\dots)\%$ if seen for method for five sixths for shop C but must recover to given values for A mark | | | | | | | | | | | | | | | | | | | | |
| | <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: center; padding: 2px;">Shop</th><th style="text-align: center; padding: 2px;">Cost for 1</th><th style="text-align: center; padding: 2px;">Cost for 2</th><th style="text-align: center; padding: 2px;">Cost for 4</th><th style="text-align: center; padding: 2px;">Cost for 8</th></tr> </thead> <tbody> <tr> <td style="text-align: center; padding: 2px;">A</td><td style="text-align: center; padding: 2px;">2.39</td><td style="text-align: center; padding: 2px;">4.78</td><td style="text-align: center; padding: 2px;">9.56</td><td style="text-align: center; padding: 2px;">19.12</td></tr> <tr> <td style="text-align: center; padding: 2px;">B</td><td style="text-align: center; padding: 2px;">2.31</td><td style="text-align: center; padding: 2px;">4.62</td><td style="text-align: center; padding: 2px;">9.24</td><td style="text-align: center; padding: 2px;">18.48</td></tr> <tr> <td style="text-align: center; padding: 2px;">C</td><td style="text-align: center; padding: 2px;">2.37(5) or 2.38</td><td style="text-align: center; padding: 2px;">4.75</td><td style="text-align: center; padding: 2px;">9.5(0)</td><td style="text-align: center; padding: 2px;">19(.00)</td></tr> </tbody> </table> | Shop | Cost for 1 | Cost for 2 | Cost for 4 | Cost for 8 | A | 2.39 | 4.78 | 9.56 | 19.12 | B | 2.31 | 4.62 | 9.24 | 18.48 | C | 2.37(5) or 2.38 | 4.75 | 9.5(0) | 19(.00) |
| Shop | Cost for 1 | Cost for 2 | Cost for 4 | Cost for 8 | | | | | | | | | | | | | | | | | |
| A | 2.39 | 4.78 | 9.56 | 19.12 | | | | | | | | | | | | | | | | | |
| B | 2.31 | 4.62 | 9.24 | 18.48 | | | | | | | | | | | | | | | | | |
| C | 2.37(5) or 2.38 | 4.75 | 9.5(0) | 19(.00) | | | | | | | | | | | | | | | | | |

| Q | Answer | Mark | Comments |
|---|---|-------------|---|
| 24 | 8 × 10 or 80 or 0.5 × 8 × (14 – 10) or 0.5 × 8 × 4 or 16 or 8 × 14 or 112 | M1 | oe may be seen in an incorrect attempt to calculate the population eg $\frac{9450}{112}$ |
| | 8 × 10 + 0.5 × 8 × (14 – 10) or 8 × 10 + 0.5 × 8 × 4 or 80 + 16 or 8 × 14 – 0.5 × 8 × (14 – 10) or 8 × 14 – 0.5 × 8 × 4 or 112 – 16 or 0.5 × (10 + 14) × 8 or 96 | M1dep | oe may be seen in an incorrect attempt to calculate the population eg $\frac{9450}{96}$ |
| | their 96 × 9450 | M1 | oe their 96 must be from a calculation using at least two of 8, 10 and 14 |
| | 907 200 | A1 | |
| Additional Guidance | | | |
| The first M1 may be awarded for a correct partial area even if this is seen amongst multiple attempts | | | |
| eg1 $(8 + 10 + 14) \times 9450 = 302400$ eg2 $32 \times 9450 = 302400$ (working not seen) | | | M0M0M1A0 M0M0M0A0 |

| Q | Answer | Mark | Comment |
|--------------|---------------|-------------|----------------|
| 25(a) | 3 | B1 | |

| Q | Answer | Mark | Comment |
|--------------|--|-------------|--|
| 25(b) | No and correct reason | B1 | <p>eg</p> <p>no and this gives percentage (not angle)</p> <p>no and it should be $\times 360$ (not 100)</p> <p>no and it should be 72</p> |
| | Additional Guidance | | |
| | Yes indicated | | B0 |
| | If neither box is ticked then No may be implied by the reason eg She hasn't used 360° for the circle | | B1 |
| | Ignore irrelevant, non-contradictory statements | | |
| | Do not ignore incorrect calculations or evaluations of the angle, or incorrect statements | | |
| | No and this is 20% | | B1 |
| | No and she still needs to work out 20% of 360 | | B1 |
| | No and a circle is 360° | | B1 |
| | No and angles in a pie chart are 360 | | B1 |
| | No and she needs to divide 360 by 5 | | B1 |
| | No, shouldn't have \times by 100 | | B0 |
| | No, she should have divided 360 / divided by 360 | | B0 |
| | No and a circle has 360 not 180 | | B0 |
| | No and it's not big enough | | B0 |

| Q | Answer | Mark | Comment |
|--|---|-------|--|
| 26 | <p>Correct method or evaluation of the area of any face or correct method or evaluation of the volume of any relevant cuboid of length 6 cm</p> | M1 | <p>eg 5×6 or 30 or 2×6 or 12 or 3×6 or 18 or 4×6 or 24 or $2 \times 5 + 2 \times 2$ or $10 + 4$ or 14 or $2 \times 5 \times 6$ or 60 or $2 \times 2 \times 6$ or 24 or $2 \times 3 \times 6$ or 36 or $4 \times 2 \times 6$ or 48 or $5 \times 4 \times 6$ or 120</p> |
| | Correct method for volume of prism | M1dep | eg $2 \times 5 \times 6 + 2 \times 2 \times 6$ or 60 + 24 or 14×6 |
| 84 | A1 | | |
| Additional Guidance | | | |
| The first M1 may be awarded even if this is seen amongst multiple attempts | | | |

| Q | Answer | Mark | Comment |
|---|--|-------------|--|
| 27 | 3×45 or 135 or 63 | M1 | may be seen embedded in an expression, equation or calculation eg $3 \times 45 + 31.5x = 198$ |
| | $\frac{198 - 3 \times 45}{31.5}$ or $(198 - 135) \div 31.5$ or $63 \div 31.5$ or 2 (hours) | M1dep | oe eg $31.5 \times 2 = 63$ implied by total of 5 (hours) |
| | $198 \div (3 + \text{their } 2)$ or $198 \div 5$ | M1dep | |
| | 39.6 | A1 | accept 40 with M3 awarded |
| | Additional Guidance | | |
| Up to M2 may be awarded for correct work with no answer or incorrect answer, even if this is seen amongst multiple attempts | | | |
| NB $31.5 \div (45 \div 3) = 2$ (hours) | | | M0M0 |

| Q | Answer | Mark | Comment |
|--|---|----------------|---|
| 28 | $8a + 29$ | B1 | oe eg $2(4a + 13) + 3$ |
| | $15a + 48$ | B1ft | correct or ft B0 only their $8a + 29$ must be in the form $na + c$ where $n \neq 0$ and $c \neq 0$ implied by $3(5a + 16)$ |
| | $3(5a + 16)$ or $15 = 5 \times 3$ and $48 = 16 \times 3$ | B1 | oe eg $5a + 16$ so it divides by 3 |
| Additional Guidance | | | |
| Ignore use of substitution as an attempt to show divisibility | | | |
| Ignore further non-contradictory statements | | | |
| Further simplification eg $15a + 48 = 63$ which is 21×3 | | B1B1B0 | |
| For the 1st B1 accept $8a + 29$ embedded in a calculation for the sum of the first four terms eg $a + 1 + 2a + 5 + 4a + 13 + 8a + 29$ | | | |
| For the 2nd B1 accept $15a + 48$ embedded in a calculation to show divisibility eg $\frac{15a + 48}{3} = 5a + 16$ | | | |
| For the 3rd B1 accept 15 is a multiple of 3 and 48 is a multiple of 3 | | | |
| $8a + 29$ $a + 2a + 4a + 8a = 15a \quad 1 + 5 + 13 + 29 = 48$ but $15a + 48$ not seen $15 = 5 \times 3$ and $48 = 16 \times 3$ | | B1 B0 B1 | |

| Q | Answer | Mark | Comment |
|----|--|-------|---|
| 29 | Alternative method 1 | | |
| | $\frac{32-14}{12-3} \text{ or } \frac{18}{9}$ or $(m =) 2$ | M1 | oe eg $\frac{14-32}{3-12}$ implied by $y = 2x \dots$ |
| | $14 = \text{their } 2 \times 3 + c$ or $32 = \text{their } 2 \times 12 + c$ or $(m =) 2$ and $c = 8$ or $y - 14 = \text{their } 2(x - 3)$ or $y - 32 = \text{their } 2(x - 12)$ | M1dep | oe |
| | $y = 2x + 8$ | A1 | |
| | Alternative method 2 | | |
| | $14 = 3m + c$ and $32 = 12m + c$ and $32 - 14 = 12m - 3m$ or $m = 2$ or $56 = 12m + 4c$ and $32 = 12m + c$ and $56 - 32 = 4c - c$ or $c = 8$ | M1 | oe correct method to work out m or c using simultaneous equations implied by $y = 2x \dots$ or $y = mx + 8$ |
| | Correct substitution of their m into one of the original equations or correct substitution of their c into one of the original equations or $m = 2$ and $c = 8$ | M1dep | |
| | $y = 2x + 8$ | A1 | |