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FUNCTIONAL SKILLS CERTIFICATE  
**Functional Mathematics**

Level 1

Mark Scheme

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4367

January 2017

Version/Stage: 1.0 Final

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Mark schemes are prepared by the Lead Assessment Writer and considered, together with the relevant questions, by a panel of subject teachers. This mark scheme includes any amendments made at the standardisation events which all associates participate in and is the scheme which was used by them in this examination. The standardisation process ensures that the mark scheme covers the students' responses to questions and that every associate understands and applies it in the same correct way. As preparation for standardisation each associate analyses a number of students' scripts. Alternative answers not already covered by the mark scheme are discussed and legislated for. If, after the standardisation process, associates encounter unusual answers which have not been raised they are required to refer these to the Lead Assessment Writer.

It must be stressed that a mark scheme is a working document, in many cases further developed and expanded on the basis of students' reactions to a particular paper. Assumptions about future mark schemes on the basis of one year's document should be avoided; whilst the guiding principles of assessment remain constant, details will change, depending on the content of a particular examination paper.

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## Glossary for Mark Schemes

Examinations are marked to award positive achievement.

Marks are awarded for demonstrating the following interrelated **process skills**.

**Representing** Selecting the mathematics and information to model a situation.

- R.1 Candidates recognise that a situation has aspects that can be represented using mathematics.
- R.2 Candidates make an initial model of a situation using suitable forms of representation.
- R.3 Candidates decide on the methods, operations and tools, including ICT, to use in a situation.
- R.4 Candidates select the mathematical information to use.

**Analysing** Processing and using mathematics.

- A.1 Candidates use appropriate mathematical procedures.
- A.2 Candidates examine patterns and relationships.
- A.3 Candidates change values and assumptions or adjust relationships to see the effects on answers in models.
- A.4 Candidates find results and solutions.

**Interpreting** Interpreting and communicating the results of the analysis.

- I.1 Candidates interpret results and solutions.
- I.2 Candidates draw conclusions in light of situations.
- I.3 Candidates consider the appropriateness and accuracy of results and conclusions.
- I.4 Candidates choose appropriate language and forms of presentation to communicate results and solutions.

In particular, individual marks are mapped onto the following **skills standards**.

**Representing** Making sense of the situations and representing them.

A learner can:

- Ra** Understand routine and non-routine problems in familiar and unfamiliar contexts and situations.
- Rb** Identify the situation or problems and identify the mathematical methods needed to solve them.
- Rc** Choose from a range of mathematics to find solutions.

**Analysing** Processing and using the mathematics.

A learner can:

- Aa** Apply a range of mathematics to find solutions.
- Ab** Use appropriate checking procedures and evaluate their effectiveness at each stage.

**Interpreting** Interpreting and communicating the results of the analysis.

A learner can:

- la** Interpret and communicate solutions to multistage practical problems in familiar and unfamiliar contexts and situations.
- lb** Draw conclusions and provide mathematical justifications.

To facilitate marking, the following categories are used:

- M** Method marks are awarded for a correct method which could lead to a correct answer.
  - A** Accuracy marks are awarded when following on from a correct method. It is not necessary to always see the method. This can be implied.
  - B** Marks awarded independent of method.
  - ft** Follow through marks. Marks awarded following a mistake in an earlier step.
  - SC** Special case. Marks awarded within the scheme for a common misinterpretation which has some mathematical worth.
  - oe** Or equivalent. Accept answers that are equivalent.  
eg, accept 0.5 as well as  $\frac{1}{2}$
-

| Q | Answer | Mark | Comments |
|---|--------|------|----------|
|---|--------|------|----------|

|      |                            |          |  |
|------|----------------------------|----------|--|
| 1(a) | 1000 g                     | B1<br>Aa |  |
|      | <b>Additional Guidance</b> |          |  |
|      |                            |          |  |

|      |                                     |          |   |
|------|-------------------------------------|----------|---|
| 1(b) | 1 (+) $48 \div 24$<br>or<br>1 (+) 2 | M1<br>Ra |   |
|      | 3                                   | A1<br>Aa | SC1 ingredients for 3 batches with up to 2 errors<br>600 g margarine<br>750 g flour<br>300 g sugar<br>6 eggs<br>3 teaspoons baking powder |
|      | <b>Additional Guidance</b>          |          |   |
|      |                                     |          |   |

|      |                                     |                        |            |                                |
|------|-------------------------------------|------------------------|------------|--------------------------------|
| 1(c) | their $3 \times 2$<br>or<br>their 6 | $1 + 2 \times$ their 2 | M1<br>Rb   |                                |
|      | 5                                   |                        | A1ft<br>Aa | ft their 3 or their 2 from (b) |
|      | <b>Additional Guidance</b>          |                        |            |                                |
|      |                                     |                        |            |                                |

| Q   | Answer   | Mark          | Comments  |
|---|--|---------------|---|
| 1(d)  | <b>Alternative method 1</b>  |               |   |
|   | $32 \div 16 = 2$ and $72 \div 24 = 3$<br>and<br>$5 \times 1.92 = 9.6(0)$ or $9.6(0) \div 1.92 = 5$                                 | B2<br>Aa<br>/ | B1 $32 \div 16 = 2$ and $72 \div 24 = 3$<br>or<br>$5 \times 1.92 = 9.6(0)$ or $9.6(0) \div 1.92 = 5$                                |
|   | <b>Alternative method 2</b>  |               |   |
|   | $32 \div 16 = 2$ and $72 \div 24 = 3$<br>and<br>$2 \times 1.92 = 3.84$ and $3 \times 1.92 = 5.76$<br>and<br>$3.84 + 5.76 = 9.6(0)$ | B2<br>Aa<br>/ | B1 $32 \div 16 = 2$ and $72 \div 24 = 3$<br>or<br>$2 \times 1.92 = 3.84$ and $3 \times 1.92 = 5.76$<br>or<br>$3.84 + 5.76 = 9.6(0)$ |
|   | <b>Additional Guidance</b>   |               |   |
| Alternative method 2, e.g.<br>$32 \div 16 \times 1.92 = 3.84$ and $72 \div 24 \times 1.92 = 5.76$<br>$3.84 + 5.76 = 9.6(0)$ |  | B2            |   |

| Q     | Answer  | Mark         | Comments   |
|-------|---|--------------|--|
| 1 (e) | <b>Alternative method 1</b>   |              |  |
|       | 32 ÷ 4 or 8 bags of large cookies<br>or<br>72 ÷ 12 or 6 bags of small cookies           | M1<br>Ra     |  |
|       | their 8 × 1.15 or 9.20  | M1<br>Rc     | their 8 or their 6 ≠ 4, 12, 32 or 72<br>M1 their 6 × 1.15 or 6.90<br>and<br>their 8 × 2.60 or 20.80  |
|       | their 6 × 2.60 or 15.60   | M1<br>Rc     |  |
|       | their 9.20 + their 15.60 or 24.80   | M1<br>Aa     | not 1.15 + 2.6(0)  |
|       | their 24.80 – 9.60<br>or<br>15 + 9.60<br>or<br>their 24.80 – 15                         | M1<br>Aa     |  |
|       | 15.2(0) and Yes<br>or<br>24.6(0) and 24.8(0) and Yes<br>or<br>9.8(0) and 9.6(0) and Yes | A2<br>/<br>/ | A1 15.2(0)<br>or<br>24.6(0) and 24.8(0)<br>or<br>9.8(0) and 9.6(0)<br>or<br>A1ft correct conclusion for their values<br>Must see<br>4th and 5th M1 for their income > 15<br>or<br>4th M1 for their income < 15 |

| Q    | Answer   | Mark         | Comments  |
|------|--|--------------|---|
| 1(e) | <b>Alternative method 2</b>  |              |   |
|      | 32 ÷ 4 or 8 bags of large cookies<br>or<br>72 ÷ 12 or 6 bags of small cookies  | M1<br>Ra     |   |
|      | 1.92 ÷ 4 or 0.48<br>or<br>1.92 ÷ 2 or 0.96   | M1<br>Rc     |   |
|      | 1.15 – their 0.48 or 0.67<br>or<br>2.6(0) – their 0.96 or 1.64   | M1<br>Rc     |   |
|      | their 8 × their 0.67 or 5.36<br>and<br>their 6 × their 1.64 or 9.84  | M1<br>Aa     |   |
|      | their 5.36 + their 9.84  | M1<br>Aa     |   |
|      | 15.2(0) and Yes  | A2<br>/<br>/ | A1 15.2(0)<br>or<br>A1ft correct conclusion for their values<br>must score 4th and 5th M1 |
|      | <b>Additional guidance</b>   |              |   |
|      | 24.8(0) scores M4<br>Total income < 15 and No can score M4A1ft<br>32 ÷ 12 and 72 ÷ 4 (1st M1 with 12 and 4 swapped) can score M0M1M1M1M1A1ft |              |   |



| Q     | Answer   | Mark              | Comments   |
|-------|--|-------------------|--|
| 2(a)  | 100 used or seen   | B1<br><i>Rb</i>   |  |
|       | their 100 + 140  | M1<br><i>Rc</i>   | their 100 can be 10, 25, 120 and 140   |
|       | £240   | A1ft<br><i>/</i>  | Must see £ symbol (allow 240 pounds)<br>SC2 £150, £165, £260 or £280<br>SC1 150, 165, 260, 280<br>SC1 £200 |
| Check | Reverse calculation or alternative method, e.g.<br>240 – 140 = 100<br>or<br>240 – 100 = 140  | B1ft<br><i>Ab</i> |  |
| 2(a)  | <b>Additional Guidance</b>   |                   |  |
|       | <p><b>Check</b></p> <p>Must see initial method to award checking mark for reverse or alternative method</p> <p>If method not shown in main body mark if seen in checking space</p> <p>Mark check in main body if not seen in checking space</p> <p>Allow, e.g., 140 + 140 = 280 as an alternative to <math>2 \times 140 = 280</math></p> <p>Allow £ sign in check if not seen in main body</p> |                   |  |
| 2(b)  | 75 (mpg)   | B1<br><i>Aa</i>   |  |
|       | <b>Additional Guidance</b>   |                   |  |
|       |  |                   |  |

| Q           | Answer                          | Mark           | Comments   |
|-------------|---------------------------------|----------------|--|
| <b>2(c)</b> | <b>Alternative method 1</b>     |                |  |
|             | 60 × 5 or 300                   | M1<br>Ra       | total miles per week   |
|             | their 300 ÷ their 75<br>or<br>4 | M1<br>Rc       | Step 1<br>their 300 ÷ 75 or 83<br>their 75 can be<br>83<br>or<br>their 75 from <b>2(b)</b>                             |
|             | their 4 × 4.9(0)                | M1<br>Aa       | Step 2   |
|             | (£)19(.60) and Yes              | A2ft<br>/<br>/ | ft their 75 from <b>2(b)</b><br>A1ft (£)19(.60)<br>or<br>A1ft correct conclusion for their (£)19(.60)<br>must score M3 |
|             | <b>Alternative method 2</b>     |                |  |
|             | 60 ÷ 75 or 0.8                  | M1<br>Ra       |  |
|             | 0.8 × 4.9 or 3.92               | M1<br>Rc       |  |
|             | 3.92 × 5                        | M1<br>Aa       |  |
|             | (£)19(.60) and Yes              | A2ft<br>/<br>/ | ft their 75 from <b>2(b)</b><br>A1ft (£)19(.60)<br>or<br>A1ft correct conclusion for their (£)19(.60)<br>must score M3 |

|                         | Additional Guidance  |                     |    |                         |    |                       |      |
|-------------------------|--|---------------------|----|-------------------------|----|-----------------------|------|
| 2(c)                    | <p>If their 75 = 83 can score M3A1ft unless in <b>2(b)</b> their 75 = 83</p> <p>If their 75 is from <b>2(b)</b> can score M3A2ft</p> <p><math>\times 5</math>, <math>\div</math> their 75 and <math>\times 4.9</math> can be done in any order, e.g.</p> <table><tbody><tr><td><math>60 \times 5 = 300</math></td><td>M1</td></tr><tr><td><math>300 \times 4.9 = 1470</math></td><td>M1</td></tr><tr><td><math>1470 \div 75 = 19.6</math></td><td>M1A1</td></tr></tbody></table> | $60 \times 5 = 300$ | M1 | $300 \times 4.9 = 1470$ | M1 | $1470 \div 75 = 19.6$ | M1A1 |
| $60 \times 5 = 300$     | M1   |                     |    |                         |    |                       |      |
| $300 \times 4.9 = 1470$ | M1   |                     |    |                         |    |                       |      |
| $1470 \div 75 = 19.6$   | M1A1   |                     |    |                         |    |                       |      |

| Q    | Answer  | Mark     | Comments   |
|------|---|----------|--|
| 2(d) | <b>Alternative method 1</b>   |          |  |
|      | 57 + 42 or 99 (min) or 1 (h) 39 (min)<br>and<br>46 + 52 or 98 (min) or 1 (h) 38 (min)<br>and<br>51 + 54 or 105 (min) or 1 (h) 45 (min)<br>and<br>40 + 46 or 86 (min) or 1 (h) 26 (min)<br>and<br>44 + 58 or 102 (min) or 1 (h) 42 (min) | M1<br>Aa | allow one error  |
|      | their 4 days (out of 5) $> 1\frac{1}{2}$ hours<br>or<br>their 1 day (out of 5) $< 1\frac{1}{2}$ hours<br>or<br>all their days except their Thursday<br>$> 1\frac{1}{2}$ hours   | M1<br>/  | $> 1\frac{1}{2}$ hours or $< 1\frac{1}{2}$ hours can be implied<br>e.g. one day the train takes longer<br>on Thursday it is quicker by car<br>on Thursday it is 4 min quicker by car |
|      | Yes   | A1<br>/  | must score M2 with no errors<br>SC1 ( $1\frac{1}{2}$ hours =) 90 min or 1 h 30 min   |
|      | <b>Alternative method 2</b>   |          |  |
|      | 57 + 42 + 46 + 52 + 51 + 54 + 40 + 46<br>+ 44 + 58<br>or<br>99 + 98 + 105 + 86 + 102<br>or<br>490 (min)   | M1<br>Aa | allow one error  |
|      | their 490 $\div$ 5  | M1<br>/  |  |
|      | Yes and 98 (min) or 1 (h) 38 (min)  | A1<br>/  | SC1 ( $1\frac{1}{2}$ hours =) 90 min or 1 h 30 min   |

| Q | Answer | Mark | Comments |
|---|--------|------|----------|
|---|--------|------|----------|

|             |   |          |  |
|-------------|---|----------|--|
| <b>2(d)</b> | <b>Alternative method 3</b>   |          |  |
|             | 57 + 42 + 46 + 52 + 51 + 54 + 40 + 46<br>+ 44 + 58<br>or<br>99 + 98 + 105 + 86 + 102<br>or<br>490 (min)<br>or<br>8(h) 10(min) | M1<br>Aa | allow one error                                    |
|             | $1\frac{1}{2} \times 5$ or $7\frac{1}{2}$ (h) or 450 (min)  | M1<br>/  |  |
|             | Yes and 8 (h) 10 (min) and $7\frac{1}{2}$ (h)<br>or<br>Yes and 490 (min) and 450 (min)  | A1<br>/  | SC1 ( $1\frac{1}{2}$ hours =) 90 min or 1 h 30 min |

|             |  |  |  |
|-------------|--|--|--|
| <b>2(d)</b> | <b>Additional Guidance</b>   |  |  |
|             | For 1 (h) 39 (min) allow 1.39 (h) or 1:39 (h)<br><b>Beware!</b><br>There are two ways of obtaining 98 (min) or 1 (h) 38 (min) - 46 + 52 and $490 \div 5$ |  |  |

| Q    | Answer  | Mark                | Comments   |   |   |   |             |   |   |   |             |   |   |   |             |   |   |   |             |   |   |   |             |   |   |   |             |   |   |   |
|------|---|---------------------|--|---|---|---|-------------|---|---|---|-------------|---|---|---|-------------|---|---|---|-------------|---|---|---|-------------|---|---|---|-------------|---|---|---|
| 3(a) | Fully correct rota with all 5 criteria met  | B3<br>Aa<br>Aa<br>/ | B2 any 4 of the criteria met<br>B1 any 3 of the criteria met |   |   |   |             |   |   |   |             |   |   |   |             |   |   |   |             |   |   |   |             |   |   |   |             |   |   |   |
|      | <b>Additional Guidance</b>  |                     |  |   |   |   |             |   |   |   |             |   |   |   |             |   |   |   |             |   |   |   |             |   |   |   |             |   |   |   |
|      | <p>The 5 criteria are</p> <ul style="list-style-type: none"> <li>• Nobody works more than one shift a day</li> <li>• Amy only works on Monday, Tuesday, Wednesday and Sunday</li> <li>• Brad does not work on Sunday</li> <li>• Cassie does not work on Wednesday</li> <li>• Del works on exactly 5 days</li> </ul> <p>Fully correct solution</p> <table style="margin-left: 40px;"> <tr><td>A</td><td>B</td><td>C</td><td>(any order)</td></tr> <tr><td>A</td><td>B</td><td>C</td><td>(any order)</td></tr> <tr><td>A</td><td>B</td><td>D</td><td>(any order)</td></tr> <tr><td>B</td><td>C</td><td>D</td><td>(any order)</td></tr> <tr><td>B</td><td>C</td><td>D</td><td>(any order)</td></tr> <tr><td>B</td><td>C</td><td>D</td><td>(any order)</td></tr> <tr><td>A</td><td>C</td><td>D</td><td>(any order)</td></tr> </table> <p>Award B0 if on any day more than one person is allocated to a shift</p> <p>Award B0 if &gt;1 blank shift</p> <p>Award B1 if 1 blank shift and 4 criteria met</p> <p>Treat any name that is not A, B, C or D as a blank</p> |                     |  | A | B | C | (any order) | A | B | C | (any order) | A | B | D | (any order) | B | C | D | (any order) | B | C | D | (any order) | B | C | D | (any order) | A | C | D |
| A    | B   | C                   | (any order)  |   |   |   |             |   |   |   |             |   |   |   |             |   |   |   |             |   |   |   |             |   |   |   |             |   |   |   |
| A    | B   | C                   | (any order)  |   |   |   |             |   |   |   |             |   |   |   |             |   |   |   |             |   |   |   |             |   |   |   |             |   |   |   |
| A    | B   | D                   | (any order)  |   |   |   |             |   |   |   |             |   |   |   |             |   |   |   |             |   |   |   |             |   |   |   |             |   |   |   |
| B    | C   | D                   | (any order)  |   |   |   |             |   |   |   |             |   |   |   |             |   |   |   |             |   |   |   |             |   |   |   |             |   |   |   |
| B    | C   | D                   | (any order)  |   |   |   |             |   |   |   |             |   |   |   |             |   |   |   |             |   |   |   |             |   |   |   |             |   |   |   |
| B    | C   | D                   | (any order)  |   |   |   |             |   |   |   |             |   |   |   |             |   |   |   |             |   |   |   |             |   |   |   |             |   |   |   |
| A    | C   | D                   | (any order)  |   |   |   |             |   |   |   |             |   |   |   |             |   |   |   |             |   |   |   |             |   |   |   |             |   |   |   |

| Q           | Answer  | Mark     | Comments                              |
|-------------|---|----------|---------------------------------------|
| <b>3(b)</b> | <b>Alternative method 1</b>                                   |          |                                       |
|             | 180 × 20 or 3600  | M1<br>Rb |                                       |
|             | 8 am → 3 pm = 7 hours   | M1<br>Aa | implied by 6 seen                     |
|             | their 7 × 60 or 420   | M1<br>Rc |                                       |
|             | their 3600 ÷ (their 420 – 60)<br>or<br>their 3600 ÷ their 360 | M1<br>Aa | their 420 – 60 can be 420             |
|             | 10  | A1<br>/  |                                       |
|             | <b>Alternative method 2</b>                                   |          |                                       |
|             | (8 am → 3 pm) = 7 (h)   | M1<br>Rb | implied by 6 seen                     |
|             | (their 7 – 1) × 60 or 360<br>or<br>their 6 × 60 or 360        | M1<br>Aa | their 7 – 1 can be 7                  |
|             | their 360 ÷ 20 or 18  | M1<br>Rc | their 18 can be 21<br>their 360 ≠ 180 |
|             | 180 ÷ their 18  | M1<br>Aa |                                       |
|             | 10  | A1<br>/  |                                       |

| Q    | Answer   | Mark   | Comments                     |                          |                      |
|------|--|--|------------------------------|--------------------------|----------------------|
| 3(b) | <b>Alternative method 3</b>                        |  |                              |                          |                      |
|      | 180 × 20 or 3600                                   | M1<br>Rb   |                              |                          |                      |
|      | their 3600 ÷ 60 or 60                              | M1<br>Aa   |                              |                          |                      |
|      | 8 am → 3 pm = 7 (h)                                | M1<br>Rc   | implied by 6 seen            |                          |                      |
|      | their 60 ÷ (their 7 – 1)<br>or<br>their 60 ÷ 6     | M1<br>Aa   | their 7 – 1 can be 7         |                          |                      |
|      | 10   | A1<br>/  |                              |                          |                      |
|      | <b>Alternative method 4</b>                        |  |                              |                          |                      |
|      | 60 ÷ 20 or 3                                       | M1<br>Rb   | 3 rooms per hour per cleaner |                          |                      |
|      | 8 am → 3 pm = 7 (h)                                | M1<br>Aa   | implied by 6 seen            |                          |                      |
|      | (their 7 – 1) × 3<br>or<br>their 6 × 3<br>or<br>18 | 180 ÷ (their 7 – 1)<br>or<br>180 ÷ their 6<br>or<br>30 | M1<br>Rc                     | 180 ÷ their 3 or 60      | their 7 – 1 can be 7 |
|      | 180 ÷ their 18                                     | their 30 ÷ their 3                                     | M1<br>Aa                     | their 60 ÷ (their 7 – 1) | their 18 can be 21   |
|      | 10   | A1<br>/  |                              |                          |                      |



| <b>Additional Guidance</b> |  |        |
|----------------------------|--|--------|
| <b>3(b)</b>                | <b>Missing the 1-hour break</b>        |        |
|                            | This can score M4 max                  |        |
|                            | e.g. Using <b>Alternative method 1</b> |        |
|                            | 180 × 20 = 3600                        | M1     |
|                            | 3600 ÷ 420 = 8.57                      | M1M1M1 |
|                            | 9 cleaners                             | A0     |
|                            | <b>Using Alternative method 4</b>      |        |
|                            | 3 rooms per hour                       | M1     |
|                            | (8 am → 3 pm) = 7 (h)                  | M1     |
|                            | 7 × 3 = 21                             | M1     |
| 180 ÷ 21 = 8.57            | M1                                     |        |
| 9 cleaners                 | A0                                     |        |
| 18 or 21 usually score M3  |  |        |

| Q    | Answer  | Mark         | Comments  |
|------|---|--------------|---|
| 3(c) | <b>Alternative method 1</b>                               |              |   |
|      | $4+3+1+4+2+1+3+3+2+1 = 24$<br>and<br>$24 \div 10 = 2.4$   | B2<br>/<br>/ | B1 $4+3+1+4+2+1+3+3+2+1 = 24$<br>or<br>$24 \div 10 = 2.4$   |
|      | <b>Alternative method 2</b>                               |              |   |
|      | $4+3+1+4+2+1+3+3+2+1 = 24$<br>and<br>$2.4 \times 10 = 24$ | B2<br>/<br>/ | B1 $4+3+1+4+2+1+3+3+2+1 = 24$<br>or<br>$2.4 \times 10 = 24$ |
|      | <b>Additional Guidance</b>                                |              |   |
|      |   |              |   |

| Q    | Answer                       | Mark             | Comments   |  |
|------|------------------------------|------------------|--|--|
| 3(d) | <b>Alternative method 1</b>  |                  |  |  |
|      | 3000 × 2.4 or<br>7200        | 3000 ÷ 120 or 25 | M1<br>Rc   | Allow × 2.4, ÷ 120 and × 6 in any order, e.g.<br>3000 × 6 or 18 000<br>18 000 ÷ 120 or 150<br>150 × 2.4 or 360 |
|      | their 7200 ÷ 120<br>or 60    | 25 × 2.4 or 60   | M1<br>Rc   |  |
|      | their 60 × 6                 |                  | M1<br>Aa   |  |
|      | Yes and (£)360               | A2<br>/<br>/     | A1 (£)360<br>or<br>A1ft correct conclusion for their (£)360<br>must × 2.4 (or 2 or 3 if rounded) |  |
|      | <b>Alternative method 2</b>  |                  |  |  |
|      | 3000 × 2.4 or 7200           |                  | M1<br>Rc   |  |
|      | their 7200 ÷ 120<br>or<br>60 |                  | M1<br>Rc   |  |
|      | 350 ÷ 6<br>or<br>58.3        |                  | M1<br>Aa   |  |
|      | Yes and 60 and 58(.3 ...)    |                  | A2<br>/<br>/   | A1 60 and 58(.3 ...)<br>or<br>A1ft correct conclusion for their values<br>must × 2.4 (or 2 or 3 if rounded)    |

|      | Additional Guidance  |
|------|--|
| 3(d) | Rounding 2.4 can score M0M1M1A1ft max                              |
|      | In alternative method 1      2.4 → 2 gives No and 300              |
|      | 2.4 → 3 gives Yes and 450  |
|      | In alternative method 2      2.4 → 2 gives No and 50 and 58(.3...) |
|      | 2.4 → 3 gives Yes and 75 and 58(.3...)                             |

| Q    | Answer  | Mark                           | Comments   |
|------|---|--------------------------------|--|
| 4(a) | Side of box<br>rectangle drawn with<br>width 10 cm<br>and<br>height at least 15.2 cm  | B2<br><i>Rb</i><br><i>Aa</i>   | B1 Rectangle drawn with<br>width 10 cm<br>or<br>height at least 15.2 cm  |
|      | Window<br>Rectangle drawn with<br>dimensions 6 cm by 4 cm<br>and<br>a vertical line of symmetry within<br>their side of box<br>and<br>a horizontal line of symmetry<br>within their side of box   | B2ft<br><i>Ra</i><br><i>Aa</i> | B1ft Rectangle drawn with<br>dimensions 6 cm by 4 cm<br>or<br>a vertical line of symmetry within<br>their side of box<br>or<br>a horizontal line of symmetry<br>within their side of box |
|      | <b>Additional Guidance</b>  |                                |  |
|      | For the side of box allow B1 for a length clearly > 15 cm<br>Award B1ft for any size window with a vertical and/or horizontal line of symmetry within the side<br>Allow any length of 10 cm (horizontal or vertical) for the width of the side of the box<br>If a width and a length are drawn allow the outside of the grid to complete the sides of the box |                                |  |

| Q    | Answer                                | Mark                      | Comments   |  |
|------|---------------------------------------|---------------------------|--|--|
| 4(b) | <b>Alternative method 1</b>           |                           |  |  |
|      | 6 × 45 or 270<br>or<br>5 × 71 or 355  | M1<br><i>Ra</i>           |  |  |
|      | 6 × 45 or 270<br>and<br>5 × 71 or 355 | M1<br><i>Rc</i>           |  |  |
|      | their 270 + their 355                 | M1<br><i>Aa</i>           | must add 2 values (can be 45 + 71)   |  |
|      | 625 and No                            | A2<br>/<br>/              | A1 625<br>or<br>A1ft correct conclusion for their 625<br>must score 1st and 3rd M1 |  |
|      | <b>Alternative method 2</b>           |                           |  |  |
|      | 6 × 45 or 270                         | 5 × 71 or 355             | M1<br><i>Ra</i>  |  |
|      | 600 – their 270<br>or 330             | 600 – their 355<br>or 245 | M1<br><i>Rc</i>  |  |
|      | their 330 ÷ 71                        | their 245 ÷ 45            | M1<br><i>Aa</i>  |  |
|      | [4.6, 4.7] and No                     | 5.4 ... and No            | A2<br>/<br>/   | A1 [4.6, 4.7] or 5.4 ...<br>or<br>A1ft correct conclusion for their value<br>must score 1st and 3rd M1 |
|      | <b>Additional Guidance</b>            |                           |  |  |
|      |                                       |                           |  |  |

| Q     | Answer   | Mark             | Comments  |
|-------|--|------------------|---|
| 4(c)  | <b>Alternative method 1</b>  |                  |   |
|       | 270 ÷ 50   | M1<br>Ra         |   |
|       | 5.4  | A1<br>Aa         | or $5\frac{2}{5}$ or 5 remainder 20                 |
|       | 6  | A1ft<br>/        | ft their 5.4 rounded up to the nearest whole number |
|       | <b>Alternative method 2</b>  |                  |   |
|       | attempts to add at least four 50's   | M1<br>Ra         |   |
|       | adds five 50's to give 250<br>and<br>adds six 50's to give 300   | A1<br>Aa         |   |
| 6     | A1ft<br>/  |                  |   |
| Check | reverse calculation<br>e.g. $270 \div 5 = 54$<br>and<br>$270 \div 6 = 45$<br>or<br>alternative method<br>e.g.<br>$5 \times 50 = 250$ and $6 \times 50 = 300$ | B1<br>Ab         |   |
| 4(c)  | <b>Additional Guidance</b>   |                  |   |
|       | A1ft in Alternative method 2<br>$4 \times 50 = 250$<br>$5 \times 50 = 300$<br>5 boxes  | M1<br>A0<br>A1ft |   |

| Q    | Answer                                      | Mark         | Comments   |  |
|------|---|--------------|--|--|
| 4(d) | 28 × 9 or 252                               | M1<br>Ra     |  |  |
|      | their 252 ÷ 5 or 50.4                       | M1<br>Ra     |  |  |
|      | their 50.4 + 32                             | M1<br>Aa     |  |  |
|      | 82(.4) and Yes                              | A2<br>/<br>/ | A1 82(.4)<br>or<br>A1ft correct conclusion for their 82(.4)<br>must score M2 |  |
|      | <b>Additional Guidance</b>                  |              |  |  |
|      | Using 85 instead of 28 can score M0M1M1A1ft |              |  |  |