
Functional Skills

Functional Mathematics

Level 2
Mark scheme

4368
March 2018

Version: 1.0 Final



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 $\frac{1}{2}$
-

| Question | Answer | Mark | Comments |
|----------|--------|------|----------|
|----------|--------|------|----------|

| | | | |
|------|----------------------------|-----------------|--|
| 1(a) | £300 | B1 <i>Rb</i> | |
| | Additional Guidance | | |
| | | | |

| | | | |
|------|--|----------------------|--|
| 1(b) | Alternative method 1 | | |
| | (£)200 | B1 <i>Rb</i> | winter fuel payment may be seen in working |
| | 10.5(0) × 12 or 126 or 326 or 194 | M1 <i>Aa</i> | |
| | 326 and Yes or 200 and 194 and Yes | A2ft <i>lb lb</i> | ft B0M1 and a winter fuel payment used A1ft 326 or 200 and 194 ft B0M1 and a winter fuel payment used A1ft correct conclusion for their value(s) ft B1M1 and a winter fuel payment used or ft B0M1 and a winter fuel payment used |
| | Alternative method 2 | | |
| | (£)200 | B1 <i>Rb</i> | winter fuel payment may be seen in working |
| | $\frac{320 - \text{their } 200}{12}$ or $\frac{120}{12}$ | M1 <i>Aa</i> | |
| | 10 and Yes | A2ft <i>lb lb</i> | ft B0M1 A1ft 10 ft B0M1 A1ft correct conclusion for their value ft B0M1 or B1M1 |

| Question | Answer | Mark | Comments |
|-------------|---|----------------------|---|
| 1(b) | Alternative method 3 | | |
| | (£)200 | B1 <i>Rb</i> | winter fuel payment may be seen in working |
| | 10.5(0) × 12 or 126 and 320 – their 200 or 120 | M1 <i>Aa</i> | |
| | 126 and 120 and Yes | A2ft <i>lb lb</i> | ft B0M1 A1ft 126 and 120 ft B0M1 A1ft correct conclusion for their values ft B0M1 or B1M1 |
| | Additional Guidance | | |
| | | | |

| Question | Answer | Mark | Comments |
|----------|--|---------------------|---|
| 1(c) | $11 \times 3 + 7.5 \times 5 = 70.5$ or $8 \times 7.5 + 3 \times 3.5 = 70.5$ or $11 \times 8 - 5 \times 3.5 = 70.5$ or $3 \times 3.5 + 3 \times 7.5 + 5 \times 7.5 = 70.5$ | B2 <i>Ra la</i> | B1 11×3 or 33 or 7.5×5 or 37.5 or 8×7.5 or 60 or 3×3.5 or 10.5 or 11×8 or 88 or 5×3.5 or 17.5 or 3×7.5 or 22.5 |
| | Additional Guidance | | |
| | $11 \times 3 + 7.5 \times 5 = 33 + 30.5$ (error seen) = 70.5 | B1 | |
| 1(d) | $0.1 \times$ their 70.5 or 7.05 | $1 - 0.1$ or 0.9 | M1 <i>Rc</i> correct or ft their 70.5 from (c) |
| | 63.45 | | A1ft <i>Aa</i> correct or ft their 70.5 from (c) |
| | Additional Guidance | | |
| | $10\% \times 70.5$ not evaluated or evaluated incorrectly | | M0 |

| Question | Answer | Mark | Comments | |
|--|--|--------------|---|--|
| 1(e) | their $63.45 \div 11$ or 5.7... or 5.8 or 6 (rolls) or $5 \times 11 = 55$ | M1 Rc | correct or ft their 63.45 from (d) their 63.45 cannot be 70.5 | |
| | 6 (rolls) | M1 lb | rounds their 5.7... up to nearest integer M2 6×11 | |
| | their $6 \times 26 \times 0.5$ or 78 | M1 Ra | their 6 does not have to be an integer but must be > 5 | |
| | $70.5 \div 6.5$ or 10.8... or 11 (rolls) | M1 Rb | must use 70.5 | |
| | their $11 \div 4$ rounded down to nearest integer or 2 (packs) | M1 lb | their 11 must be a rounded up integer from calculation or decimal value seen 2 packs and 3 single rolls may be implied by calculation seen | |
| | $80 \times$ their 2 + $24.75 \times$ their 3 or $160 + 74.25$ or 234.25 | M1 Ra | cost using special offer their 2 and their 3 must both be positive integers | |
| | 312.25 with 6 (rolls) and 11 (rolls) | A1ft Aa | ft their 63.45 from (d) | |
| | Additional Guidance | | | |
| | Using 6 rolls for bottom layer and 3 packs for top layer $\rightarrow 78 + 3 \times 80 = 318$ | | M4M0M0 | |
| | Using 63.45 for 70.5 $\rightarrow 287.50$ | | M3M0M1M1 | |
| Using 70.5 for 63.45 $\rightarrow 325.25$ | | M0M5 | | |
| Using 63.45 for 70.5 and using 70.5 for 63.45 $\rightarrow 300.50$ | | M0M1M1M0M1M1 | | |

| Question | Answer | Mark | Comments |
|-------------|---|--------------------|--|
| 2(a) | Alternative method 1 | | |
| | $5 \times 35 \times 2$ or 350 or $6 \times 20 \times 2$ or 240 or 4×8.5 or 34 | M1 <i>Ra</i> | |
| | Any 2 of $5 \times 35 \times 2$ or 350 $6 \times 20 \times 2$ or 240 4×8.50 or 34 | M1 <i>Rc</i> | |
| | $2 \times 51 + \text{their } 350 + \text{their } 240$ $+ 2 \times 54.50 + \text{their } 34$ or $102 + \text{their } 350 + \text{their } 240 + 109$ $+ \text{their } 34$ | M1 <i>Aa</i> | must add 5 different categories allow their 34 to be 8.50 must be at least 2 of each other amount from the table with at least 5 overnight stays |
| | 835 and No | A2 <i>lb lb</i> | A1 835 A1ft correct conclusion for their value with 3rd M1 scored |

| Question | Answer | Mark | Comments |
|-----------------------------|--|---------------------------|--|
| 2(a) cont. | Alternative method 2 | | |
| | 5 × 35 or 175 or 6 × 20 or 120 or 4 × 8.5 or 34 | M1 <i>Ra</i> | |
| | Any two of 5 × 35 or 175 6 × 20 or 120 4 × 8.50 or 34 | M1 <i>Rc</i> | |
| | 2 × 51 + 2 × their 175 + 2 × their 120 + 2 × 54.5 + their 34 or 102 + 2 × their 175 + 2 × their 120 + 109 + their 34 | M1 <i>Aa</i> | must add 5 different categories allow their 34 to be 8.50 must be at least 2 of each other amount from the table with at least 5 overnight stays |
| | 835 and No | <i>A2</i> <i>lb lb</i> | A1 835 A1ft correct conclusion for their value with 3rd M1 scored |
| | Additional Guidance | | |
| | 635 and Yes (other costs 2 × 20 = 40) | | M3A1ft |
| | 843.50 and No (baggage 5 × 8.50 = 42.50) | | M3A1ft |
| | 643.50 and Yes (other costs 2 × 20 = 40 and baggage 5 × 8.50 = 42.50) | | M1M0M1A1ft |

| Question | Answer | Mark | Comments | | |
|---------------------------------|--|-----------------------|--|----------|----|
| 2(b) | Fully correct plan with all entries in table completed | B3 <i>Ra la la</i> | B2 Keswick and 50 and (Keswick and) Melmerby and 53 or Keswick and 50 and Melmerby (and Stanhope) and 53 B1 Keswick and 50 or $156 \div 3$ or 52 | | |
| | Whitehaven | | | Keswick | 50 |
| | Keswick | | | Melmerby | 53 |
| | Melmerby | | | Stanhope | 53 |
| | Additional Guidance | | | | |
| B2 or B1 may be seen in working | | | | | |

| Question | Answer | Mark | Comments |
|----------|--|-------------|---|
| 2(c) | Alternative method 1 | | |
| | 225 – 156 or 69 | M1 Ra | |
| | their 69 ÷ 30 or 2.3(0) (h) or 2 h 18 min | M1 Rb | 2 h 30 min or (actual travel time =) 2 h 20 min or $2\frac{1}{3}$ (h) with no method seen is M0M0 |
| | 11.00 + their 2 h 18 min + 2 | M1 Aa | |
| | 3.18 and Yes | A2 lb lb | A1 3.18 A1ft correct conclusion for their value with M3 scored |
| | Alternative method 2 | | |
| | 225 – 156 or 69 | M1 Ra | |
| | their 69 ÷ 30 or 2.3(0) (h) or 2 h 18 min | M1 Rb | 2 h 30 min or (actual travel time =) 2 h 20 min or $2\frac{1}{3}$ (h) with no method seen is M0M0 |
| | 2 h + their 2 h 18 min or 4 h 18 min and 3.20 – 11.00 or 4 h 20 min | M1 Aa | |
| | 4 h 18 min and 4 h 20 min and Yes | A2 lb lb | A1 4 h 18 min and 4 h 20 min A1ft correct conclusion for their values with M3 scored |

| Question | Answer | Mark | Comments | |
|-----------------------|---|---|---|--|
| 2(c) cont. | Alternative method 3 | | | |
| | 225 – 156 or 69 | M1 <i>Ra</i> | | |
| | their 69 ÷ 30 or 2.3(0) (h) or 2 h 18 min | M1 <i>Rb</i> | 2 h 30 min or (actual travel time =) 2 h 20 min or $2\frac{1}{3}$ (h) with no method seen is MOM0 | |
| | 11.00 + their 2 h 18 min or 1.18 and 3.20 – 2 or 1.20 | M1 <i>Aa</i> | | |
| | 1.18 and 1.20 and Yes | A2 <i>lb lb</i> | A1 1.18 and 1.20 A1ft correct conclusion for their values with M3 scored | |
| | Alternative method 4 | | | |
| | 225 – 156 or 69 | M1 <i>Ra</i> | | |
| | their 69 ÷ 30 or 2.3(0) (h) or 2 h 18 min | (available travel time =) 3.20 – 11.00 – 2 or 2 h 20 min | M1 <i>Rb</i> | 2 h 30 min or (actual travel time =) 2 h 20 min or $2\frac{1}{3}$ (h) with no method seen is MOM0 |
| | (available travel time =) 3.20 – 11.00 – 2 or 2 h 20 min | their $2\frac{20}{60} \times 30$ or 70 | M1 <i>Aa</i> | |
| | 2 h 18 min and 2 h 20 min and Yes | 69 and 70 and Yes | A2 <i>lb lb</i> | A1 2 h 18 min and 2 h 20 min or 69 and 70 A1ft correct conclusion for their values with M3 scored |

| Question | Answer | Mark | Comments |
|---------------|---|--------------------|--|
| 2(c) cont. | Alternative method 5 | | |
| | 206 – 156 or 50 or 225 – 206 or 19 | M1 <i>Ra</i> | |
| | their 50 ÷ 30 or 1.66... (h) or 1.67 (h) or 1 h 40 min or their 19 ÷ 30 or 0.63... (h) or 38 min | M1 <i>Rb</i> | |
| | 11.00 + their 1 h 40 min + 2 + their 38 min | M1 <i>Aa</i> | |
| | 3.18 and Yes | A2 <i>lb lb</i> | A1 3.18 A1ft correct conclusion for their value with M3 scored |
| | Alternative method 6 | | |
| | 206 – 156 or 50 or 225 – 206 or 19 | M1 <i>Ra</i> | |
| | their 50 ÷ 30 or 1.66... (h) or 1.67 (h) or 1 h 40 min or their 19 ÷ 30 or 0.63... (h) or 38 min | M1 <i>Rb</i> | |
| | their 1h 40 min + their 38 min + 2 or 4 h 18 min and 3.20 – 11.00 or 4 h 20 min | M1 <i>Aa</i> | |
| | 4 h 18 min and 4 h 20 min and Yes | A2 <i>lb lb</i> | A1 4 h 18 min and 4 h 20 min A1ft correct conclusion for their values with M3 scored |

| Question | Answer | Mark | Comments |
|-----------------------|---|---------------------------|--|
| 2(c) cont. | Alternative method 7 | | |
| | 206 – 156 or 50 or 225 – 206 or 19 | M1 <i>Ra</i> | |
| | their 50 ÷ 30 or 1.66... (h) or 1.67 (h) or 1 h 40 min or their 19 ÷ 30 or 0.63... (h) or 38 min | M1 <i>Rb</i> | |
| | 11.00 + their 1 h 40 min + their 38 min or 1.18 and 3.20 – 2 or 1.20 | M1 <i>Aa</i> | |
| | 1.18 and 1.20 and Yes | <i>A2</i> <i>lb lb</i> | A1 1.18 and 1.20 A1ft correct conclusion for their values with M3 scored |
| | Alternative method 8 | | |
| | 206 – 156 or 50 or 225 – 206 or 19 | M1 <i>Ra</i> | |
| | their 50 ÷ 30 or 1.66... (h) or 1.67 (h) or 1 h 40 min or their 19 ÷ 30 or 0.63... (h) or 38 min | M1 <i>Rb</i> | |
| | their 1 h 40 min + their 38 min or 2 h 18 min and 3.20 – 11.00 – 2 or 2 h 20 min | M1 <i>Aa</i> | |
| | 2 h 18 min and 2 h 20 min and Yes | <i>A2</i> <i>lb lb</i> | A1 2 h 18 min and 2 h 20 min A1ft correct conclusion for their values with M3 scored |

| Question | Answer | Mark | Comments |
|-----------------------|---|---------------------------|--|
| 2(c) cont. | Alternative method 9 | | |
| | 206 – 156 or 50 or 225 – 206 or 19 | M1 <i>Ra</i> | |
| | their 50 ÷ 30 or 1.66... (h) or 1.67 (h) or 1 h 40 min | M1 <i>Rb</i> | |
| | 3.20 – 11.00 – their 1 h 40 min – 2 or 40 min and their $\frac{40}{60} \times 30$ or 20 | M1 <i>Aa</i> | |
| | 19 and 20 and Yes | <i>A2</i> <i>lb lb</i> | <i>A1</i> 19 and 20 <i>A1ft</i> correct conclusion for their values with M3 scored |
| | Additional Guidance | | |
| | Allow 24-hour clock notation throughout | | |
| | Ignore am/pm | | |
| | Allow decimal times for up to M3 | | |

| Question | Answer | Mark | Comments | |
|-----------------------|--|------------|--------------------------------------|----|
| 3(a) | $1.8 \times 43 + 32$ or $77.4 + 32$ | M1 Rc | | |
| | 109.4 | A1 Aa | | |
| | Additional Guidance | | | |
| | Mark holistically with 3(a) Check | | | |
| 3(a) Check | Reverse method eg $(109.4 - 32) \div 1.8 = 43$ or check by rounding eg $2 \times 40 + 30 = 110$ | B1ft Ab | must reverse to 43 or 1.8 or 32 or 0 | |
| | Additional Guidance | | | |
| | Mark holistically with 3(a) | | | |
| | $109.4 - 32 \div 1.8 = 43$ | | | B0 |

| Question | Answer | Mark | Comments |
|----------|--|----------|---|
| 3(b) | 15 | B1 Rb | |
| | Additional Guidance | | |
| | | | |
| 3(c) | 60 ÷ 12 or 5 (across) or 25 ÷ 8 or 3.(1...) (back) or 40 ÷ 19 or 2.(1...) (up) | M1 Rb | allow 5 × 12 or 3 × 8 or 2 × 19 |
| | their 5 and their 3 and their 2 | M1 lb | must be integers, rounded down when necessary |
| | their 5 × their 3 × their 2 | M1 Aa | do not have to be integers |
| | 30 | A1 Aa | |
| | Additional Guidance | | |
| | Division of volumes (60 × 25 × 40) ÷ (2 × 8 × 19) = 32.89... or 32 or 33 | | Zero |
| | 5 + 3 + 2 = 10 | | M1M1M0 |
| | Answer only of 10 | | Zero |

| Question | Answer | Mark | Comments |
|-------------|--|--------------------|---|
| 3(d) | $65 \times 1.6(0)$ or 104 or $(98 - 65) \times 1.25$ or 33×1.25 or 41.25 or 145.25 | M1 <i>Ra</i> | |
| | $\frac{2}{3} \times 54$ or 36 | M1 <i>Rc</i> | allow $0.66... \times 54$ or 0.67×54 do not allow 0.6×54 or 0.7×54 |
| | their $36 \times 3.5(0) +$ $(54 - \text{their } 36) \times 2.5(0)$ or their $36 \times 3.5(0) + 18 \times 2.5(0)$ or 126 + 45 or 171 or 316.25 | M1 <i>Aa</i> | their 36 must be an integer < 54 |
| | their 104 + their 41.25 + their 126 + their 45 – 150 or their 145.25 + their 171 – 150 or their 316.25 – 150 or their 104 + their 41.25 + their 126 + their 45 – 180 or their 145.25 + their 171 – 180 or their 316.25 – 180 or their 104 + their 41.25 + their 126 + their 45 or their 145.25 + their 171 or their 316.25 and 180 + 150 or 330 | M1 <i>Aa</i> | must add 4 components and subtract 150 or subtract 180 or must add 4 components and add 150 and 180 |
| | 166.25 and No (less than 180) or 136.25 and No (less than 150) or 330 and 316.25 and No | A2 <i>lb lb</i> | A1 166.25 or 136.25 or 330 and 316.25 A1ft correct conclusion for their value(s) with 4th M1 scored |
| | Additional Guidance | | |

| Question | Answer | Mark | Comments |
|-----------------------|---|------------|----------|
| 4(a) | $163 \div 5$ or 32.6 or $165 \div 5$ or $160 \div 5 = 32$ or $32 \times 5 = 160$ or $33 \times 5 = 165$ | M1 Aa | |
| | 33 | A1 Ib | |
| | Additional Guidance | | |
| | Mark holistically with 4(a) Check | | |
| 4(a) Check | Reverse calculation eg $32.6 \times 5 = 163$ or alternative method | B1ft Ab | |
| | Additional Guidance | | |
| | Mark holistically with 4(a) | | |
| | $33 \times 5 = 163$ or $32 \times 5 = 163$ | | B0 |

| Question | Answer | Mark | Comments |
|-------------|---|--------------------|--|
| 4(b) | Alternative method 1 Using means | | |
| | 61 + 50 + 54 + 53 + 63 + 56 + 50 + 55 or 442 or 51 + 54 + 62 + 57 + 60 + 55 or 339 | M1 <i>Rb</i> | |
| | their 442 ÷ 8 or 55.25 or their 339 ÷ 6 or 56.5 | M1 <i>Aa</i> | allow 55 or 55.2 or 55.3 with 442 seen allow 56 or 57 with 339 seen |
| | 55.25 and 56.5 and Yes | A2 <i>lb lb</i> | allow 55 or 55.2 or 55.3 with 442 seen allow 56 or 57 with 339 seen A1 55.25 and 56.5 A1ft correct conclusion for their means with M2 scored |
| | Alternative method 2 Using medians | | |
| | 50, 50, 53, 54, 55, 56, 61, 63 or 51, 54, 55, 57, 60, 62 | M1 <i>Rb</i> | |
| | (54 + 55) ÷ 2 or 54.5 or (55 + 57) ÷ 2 or 56 | M1 <i>Aa</i> | |
| | 54.5 and 56 and Yes | A2 <i>lb lb</i> | A1 54.5 and 56 A1ft correct conclusion for their medians with M2 scored |

| Question | Answer | Mark | Comments | |
|-----------------------|---|-------------------------------------|--------------------|---|
| 4(b) cont. | Alternative method 3 Scaling totals | | | |
| | 61 + 50 + 54 + 53 + 63 + 56 + 50 + 55 or 442 or 51 + 54 + 62 + 57 + 60 + 55 or 339 | M1 <i>Rb</i> | | |
| | their 442 × $\frac{6}{8}$ or 331.5 | their 339 × $\frac{8}{6}$ or 452 | M1 <i>Aa</i> | allow 331 or 332 with 442 seen |
| | 339 and 331.5 and Yes | 442 and 452 and Yes | A2 <i>lb lb</i> | A1 339 and 331.5 or 442 and 452 A1ft correct conclusion for their values with M2 scored |
| | Additional Guidance | | | |
| | 393.875 and 293(.1...) or 293.2 | | | M1M1 |
| | 393.875 and 293(.1...) or 293.2 and Yes | | | M1M1A1ft |

| | | | |
|-------------|--|-----------------|----|
| 4(c) | $\frac{4}{5}$ or 0.8 or 80% | B1 <i>Aa</i> | |
| | Additional Guidance | | |
| | 4 out of 5 or 4 : 5 | | B0 |
| | Ignore words eg $\frac{4}{5}$ and 4 out of 5 | | B1 |
| | $\frac{4}{5}$ and 4 : 5 | | B0 |
| | Ignore change of form between fraction, decimal and percentage if correct answer seen | | B1 |

| Question | Answer | Mark | Comments |
|-------------|---|----------|-------------------------------|
| 4(d) | Alternative method 1 | | |
| | (Score for questions 1 to 5) 5, 5, 0, 5, 5 or 4×5 or 20 | M1 Ra | Zeros may be blanks or dashes |
| | (Score for questions 6 to 10) -1, 6, 6, -1, 0 or $2 \times 6 + 2 \times -1$ or $12 - 2$ or 10 | M1 Rb | Zeros may be blanks or dashes |
| | (Score for questions 11 to 15) -2, 0, 0, 6, -2 or $1 \times 6 + 2 \times -2$ or $6 - 4$ or 2 | M1 Aa | Zeros may be blanks or dashes |
| | 32 | A1 Aa | |
| | Alternative method 2 | | |
| | 4×5 or 20 | M1 Ra | |
| | 3×6 or 18 | M1 Rb | |
| | 2×-1 and 2×-2 or -2 and -4 or -6 | M1 Aa | |
| | 32 | A1 Aa | |
| | Additional Guidance | | |
| | | | |

| Question | Answer | Mark | Comments |
|----------|---|---------------------------|---|
| 4(e) | Alternative method 1 | | |
| | 84 000 × 0.15 or 12 600 | M1 <i>Ra</i> | working out 85% is M0 |
| | their 12 600 ÷ (1 + 4) or 2520 | M1 <i>Rc</i> | |
| | their 12 600 ÷ (1 + 4) × 4 or their 12 600 – their 12 600 ÷ (1 + 4) | M1 <i>Aa</i> | $12\,600 \times \frac{4}{5}$ scores M3 |
| | 10 080 and Yes | <i>A2</i> <i>lb lb</i> | A1 10 080 A1ft correct conclusion for their value with 2nd and 3rd M1 scored |
| | Alternative method 2 | | |
| | 84 000 × 0.15 or 12 600 | M1 <i>Ra</i> | working out 85% is M0 |
| | 10 000 ÷ 4 or 2500 | M1 <i>Rc</i> | |
| | 10 000 ÷ 4 × 5 or 10 000 + 10 000 ÷ 4 or 12 500 | M1 <i>Aa</i> | |
| | 12 500 and 12 600 and Yes | <i>A2</i> <i>lb lb</i> | A1 12 500 and 12 600 A1ft correct conclusion for their values with 2nd and 3rd M1 scored |

| Question | Answer | Mark | Comments |
|-----------------------|-----------------------------------|---------------------|--|
| 4(e) cont. | Alternative method 3 | | |
| | 84 000 ÷ (1 + 4) or 18 800 | M1 <i>Ra</i> | |
| | 84 000 ÷ (1 + 4) × 4 or 67 200 | M1 <i>Rc</i> | |
| | their 67 200 × 0.15 | M1 <i>Aa</i> | working out 85% is M0 |
| | 10 080 and Yes | <i>A2 lb lb</i> | A1 10 080 A1ft correct conclusion for their value with 1st and 2nd M1 scored |
| | Additional Guidance | | |
| | | | |