

**OCR • GCSE MATHEMATICS J560**

# Foundation Tier — Paper 3

Calculator

June 2024 exam series

**MARK SCHEME**

---

Reproduced for free student revision use by Smart Edge International Ltd. Original paper © OCR. Not affiliated with or endorsed by OCR. For personal study use only — not for resale or redistribution.

# Foundation

**GCSE**

**Mathematics - Paper 3**

**J560/03: Paper 3 (Foundation tier)**

General Certificate of Secondary Education

**Mark Scheme for June 2024**

OCR (Oxford Cambridge and RSA) is a leading UK awarding body, providing a wide range of qualifications to meet the needs of candidates of all ages and abilities. OCR qualifications include AS/A Levels, Diplomas, GCSEs, Cambridge Nationals, Cambridge Technicals, Functional Skills, Key Skills, Entry Level qualifications, NVQs and vocational qualifications in areas such as IT, business, languages, teaching/training, administration and secretarial skills.

It is also responsible for developing new specifications to meet national requirements and the needs of students and teachers. OCR is a not-for-profit organisation; any surplus made is invested back into the establishment to help towards the development of qualifications and support, which keep pace with the changing needs of today's society.

This mark scheme is published as an aid to teachers and students, to indicate the requirements of the examination. It shows the basis on which marks were awarded by examiners. It does not indicate the details of the discussions which took place at an examiners' meeting before marking commenced.

All examiners are instructed that alternative correct answers and unexpected approaches in candidates' scripts must be given marks that fairly reflect the relevant knowledge and skills demonstrated.

Mark schemes should be read in conjunction with the published question papers and the report on the examination.

© OCR 2024

## MARKING INSTRUCTIONS

1. Make sure that you have accessed and completed the relevant training packages for on-screen marking: *RM Assessor Online Training*; *OCR Essential Guide to Marking*.
2. Make sure that you have read and understood the mark scheme and the question paper for this unit. These are available in RM Assessor.
3. Log-in to RM Assessor then mark and annotate the **required number** of practice responses (“scripts”) and the **required number** of standardisation responses.

## MARKING

1. Mark strictly to the mark scheme.
2. Marks awarded must relate directly to the marking criteria.
3. The schedule of dates is very important. It is essential that you meet the RM Assessor 50% and 100% deadlines. If you experience problems, you must contact your Team Leader (Supervisor) without delay.
4. If you are in any doubt about applying the mark scheme, consult your Team Leader via the RM Assessor messaging system.
5. Where a candidate has crossed out a response and provided a clear alternative then the crossed out response is not marked. Where no alternative response has been provided, examiners should give candidates the benefit of the doubt and mark the crossed out response where legible.
6. When a candidate provides contradictory responses, then no mark should be awarded, even if one of the answers is correct.
7. On each blank page the annotation **BP** must be inserted to confirm that the page has been checked. For additional objects (if present), a tick must be inserted on each page to confirm that it has been checked.
8. Award No Response (NR) if:
  - there is nothing written in the answer spaceAward Zero ‘0’ if:
  - anything is written in the answer space and is not worthy of credit (this includes text and symbols).

Team Leaders must confirm the correct use of the NR button with their markers before live marking commences and should check this when reviewing scripts.

The hash key (#) on your keyboard will enter NR.

Note: Award 0 marks for an attempt that earns no credit (including copying out the question).

8. The RM Assessor **comments box** is used by the Principal Examiner or your Team Leader to explain the marking of the practice responses. Please refer to these comments when checking your practice responses. **Do not use the comments box for any other reason.**

If you have any questions or comments for your Team Leader, use the RM Assessor messaging system.

9. Assistant Examiners should send a brief report on the performance of candidates to their Team Leader (Supervisor) by the end of the marking period. Please follow the direction of your Team Leader about which questions you should report on and how to submit your report. Your report should contain notes on particular strengths displayed as well as common errors or weaknesses.
10. Annotations available in RM Assessor. These **must** be used whenever appropriate during your marking.

| Annotation                                                                          | Meaning                                                                                       |
|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|
|    | Correct                                                                                       |
|    | Incorrect                                                                                     |
|    | Benefit of doubt                                                                              |
|  | Follow through                                                                                |
|  | Ignore subsequent working (after correct answer obtained), provided method has been completed |
|  | Method mark awarded 0                                                                         |
|  | Method mark awarded 1                                                                         |
|  | Method mark awarded 2                                                                         |

| Annotation  | Meaning                    |
|-------------|----------------------------|
| <b>A1</b>   | Accuracy mark awarded 1    |
| <b>B1</b>   | Independent mark awarded 1 |
| <b>B2</b>   | Independent mark awarded 2 |
| <b>MR</b>   | Misread                    |
| <b>SC</b>   | Special case               |
| <b>^</b>    | Omission sign              |
| <b>BP</b>   | Blank page                 |
| <b>SEEN</b> | Seen                       |

For a response awarded zero (or full) marks a single appropriate annotation (cross, tick, M0 or ^) is sufficient, but not required.  
 For responses that are not awarded either 0 or full marks, you must make it clear how you have arrived at the mark you have awarded and all responses must have enough annotation for a reviewer to decide if the mark awarded is correct without having to mark it independently.

**It is vital that you annotate standardisation scripts fully to show how the marks have been awarded.**

**Subject-Specific Marking Instructions**

11. **M** marks are for using a correct method and are not lost for purely numerical errors.  
**A** marks are for an accurate answer and depend on preceding **M** (method) marks. Therefore **M0 A1** cannot be awarded.  
**B** marks are independent of **M** (method) marks and are for a correct final answer, a partially correct answer, or a correct intermediate stage.  
**SC** marks are for special cases that are worthy of some credit.
12. The following abbreviations are commonly found in GCSE Mathematics mark schemes.
- **figs 237**, for example, means any answer with only these digits. You should ignore leading or trailing zeros and any decimal point e.g. 237000, 2.37, 2.370, 0.00237 would be acceptable but 23070 or 2374 would not.
  - **isw** means **ignore subsequent working** after correct answer obtained and applies as a default.
  - **nfw** means **not from wrong working**.
  - **oe** means **or equivalent**.
  - **rot** means **rounded or truncated**.
  - **soi** means **seen or implied**.
  - **dep** means that the marks are **dependent** on the marks indicated. You must check that the candidate has met all the criteria specified for the mark to be awarded.
  - **with correct working** means that full marks **must not** be awarded without some working. The required minimum amount of working will be defined in the guidance column and **SC** marks given for unsupported answers.
13. Anything in the mark scheme which is in square brackets [...] is not required for the mark to be earned, but if present it must be correct.
14. Unless the command word requires that working is shown and the working required is stated in the mark scheme, then if the correct answer is clearly given and is not from wrong working **full marks** should be awarded.
- Do not award the marks if the answer was obtained from an incorrect method, i.e. incorrect working is seen and the correct answer clearly follows from it.
15. Where follow through (**FT**) is indicated in the mark scheme, marks can be awarded where the candidate's work follows correctly from a previous answer whether or not it was correct. For questions with FT available you must ensure that you refer back to the relevant previous answer. You may find it easier to mark these questions candidate by candidate rather than question by question.

Figures or expressions that are being followed through are sometimes encompassed by single quotation marks after the word *their* for clarity, e.g. FT  $180 \times (\text{their '37' + 16})$ , or FT  $300 - \sqrt{(\text{their '52 + 72'})}$ . Answers to part questions which are being followed through are indicated by e.g. FT  $3 \times \text{their (a)}$ .

16. In questions **with no final answer line**, make no deductions for wrong work after an acceptable answer (i.e. **isw**) unless the mark scheme says otherwise, indicated by the instruction 'mark final answer'.
17. In questions **with a final answer line and incorrect answer given**:
- (i) If the correct answer is seen in the body of working and the answer given on the answer line is a clear transcription error allow full marks unless the mark scheme says 'mark final answer'. Place the annotation ✓ next to the correct answer.
  - (ii) If the correct answer is seen in the body of working but the answer line is blank, allow full marks. Place the annotation ✓ next to the correct answer.
  - (iii) If the correct answer is seen in the body of working but a completely different answer is seen on the answer line, then accuracy marks for the answer are lost. Method marks could still be awarded if there is no other method leading to the incorrect answer. Use the **M0**, **M1**, **M2** annotations as appropriate and place the annotation ✖ next to the wrong answer.
18. In questions **with a final answer line**:
- (i) If one answer is provided on the answer line, mark the method that leads to that answer. A correct step, value or statement that is not part of the method that leads to the given answer should be awarded **M0** and/or **B0**.
  - (ii) If more than one answer is provided on the answer line and there is a single method provided, award method marks only.
  - (iii) If more than one answer is provided on the answer line and there is more than one method provided, award marks for the poorer response unless the candidate has clearly indicated which method is to be marked.
19. In questions with **no final answer line**:
- (i) If a single response is provided, mark as usual.



- (ii) If more than one response is provided, award marks for the poorer response unless the candidate has clearly indicated which response is to be marked.
20. When the data of a question is consistently misread in such a way as not to alter the nature or difficulty of the question, please follow the candidate's work and allow follow through for **A** and **B** marks. Deduct 1 mark from any **A** or **B** marks earned and record this by using the **MR** annotation. **M** marks are not deducted for misreads. If a candidate corrects the misread in a later part, do not continue to follow through, but award **A** and **B** marks for the correct answer only.
21. Unless the question asks for an answer to a specific degree of accuracy, always mark at the greatest number of significant figures even if this is rounded or truncated on the answer line. For example, an answer in the mark scheme is 15.75, which is seen in the working. The candidate then rounds or truncates this to 15.8, 15 or 16 on the answer line. Allow full marks for the 15.75.
22. Ranges of answers given in the mark scheme are always inclusive.
23. For methods not provided for in the mark scheme give as far as possible equivalent marks for equivalent work. If in doubt, consult your Team Leader.
24. If in any case the mark scheme operates with considerable unfairness consult your Team Leader.

| Question |     |      | Answer             | Marks | Part marks and guidance                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|----------|-----|------|--------------------|-------|-----------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1        | (a) |      | prism              | 1     |                                                                                                           | Mark answer line; If nothing on the answer line, may be indicated in the list<br>Accept other correct words e.g. “triangular prism”                                                                                                                                                                                                                                                                                                                                                                                               |
|          | (b) | (i)  | 12                 | 1     |                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|          | (b) | (ii) | 350                | 2     | M1 for $7 \times 10 \times 5$ oe                                                                          | Accept e.g. $70 \times 5$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| 2        |     |      | 24 [kg]<br>12 [kg] | 2     | B1 for each<br><br>or<br>M1 for $44 \div 5.5$ may be implied by 8<br>or $36 \div 4.5$<br>or $36 \div 1.5$ | Accept working in g but final answer must be correct<br><br>8 used in multiplication or division e.g. $8 \div 2$ then added to 8<br>Method may be seen with multipliers as e.g.<br><div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> <math display="block">\begin{array}{r} 3 \times 3 \\ \div 2 \end{array}</math> </div> <div style="text-align: center;"> <math display="block">\begin{array}{r} 8 \\ A \times 3 \\ B \div 2 \end{array}</math> </div> </div> |
| 3        | (a) | (i)  | 1296               | 1     |                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|          | (a) | (ii) | 23                 | 1     |                                                                                                           | Accept $\pm$ or $-$ or $+$ before 23                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|          | (b) |      | 1728               | 2     | M1 for $12 \times 12 \times 12$ oe                                                                        | $1.728 \times 10^3$ scores M1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| 4        |     |      | 250                | 2     | M1 for $207.5 \div 0.83$ oe implied by figs 25[0]                                                         | M1 may be implied by a list, 0.83, 1.66, 2.49,... but must reach 207.5 or beyond                                                                                                                                                                                                                                                                                                                                                                                                                                                  |

| Question |     |  | Answer        | Marks | Part marks and guidance                                                                                                                           |                                                                                                                                                                                                                                       |
|----------|-----|--|---------------|-------|---------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 5        | (a) |  | 68.7          | 3     | <b>B2</b> for answer 68.6 or 68.65 to 68.67[0...] or $68.\dot{6}$<br>or<br><b>M1</b> for $103 \div 3$ soi 34.3[3...]<br>or $103 \times 2$ soi 206 | $\frac{2}{3} \times 103$ implies <b>M1</b><br>but not $\frac{2}{3}$ <b>of</b> 103<br>Condone 0.66 to 0.67 or $0.\dot{6}$ for $\frac{2}{3}$<br>If $\frac{2}{3}$ seen = a decimal < 1 allow the decimal $\times 103$ to imply <b>M1</b> |
|          | (b) |  | $\frac{1}{5}$ | 3     | <b>B2</b> for $\frac{400}{2000}$ oe<br>or<br><b>B1</b> for 2000 [m] or [0].4 [km]                                                                 | Condone $\frac{0.4}{2}$ or 0.2 or 20% for <b>B2</b><br>Conversion must be correct                                                                                                                                                     |
| 6        | (a) |  | C             | 1     |                                                                                                                                                   | If nothing on answer line look for clear indication in list<br>Allow $\frac{3}{4} \times 14$ on answer line                                                                                                                           |
|          | (b) |  | 3.5[0]        | 2     | <b>M1</b> for $\frac{1}{4} \times 14$ oe                                                                                                          | e.g. $0.25 \times 14$ or $14 \div 2 \div 2$ or $4 \times 3.5 = 14$ etc but not $\frac{1}{4}$ <b>of</b> 14<br><b>M1</b> for $14 - \frac{3}{4} \times 14$<br>May be seen as $14 - 10.5$                                                 |

| Question |  |  | Answer                           | Marks | Part marks and guidance                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                    |
|----------|--|--|----------------------------------|-------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 7        |  |  | 201 or 201.1 or 201.06 to 201.09 | 2     | <b>M1</b> for $\pi \times 8^2$ oe                                                                                                                                                                                                                         | Allow $64\pi$ for <b>2</b> marks<br>$\pi$ gives 201.0619...<br>3.142 gives 201.088<br>For <b>M1</b> $\pi$ may be evaluated allowing $\frac{22}{7}$ or 3.14 or 3.142                                                                                                                                                                |
| 8        |  |  | 96                               | 4     | <b>B3</b> for 19.04 or answer 0.96<br>or<br><b>B2</b> for 16<br><br>OR<br><br><b>M2</b> for $20 - 1.19 \times \textit{their } k$<br><br>or<br><br><b>M1</b> for figs 2[0] $\div$ figs 119<br><div style="text-align: right;">implied by figs 168...</div> | Condone £0.96 for 4 marks<br><br><br><br><br><br><i>Their k</i> must be:<br><ul style="list-style-type: none"> <li>from figs 2[0] <math>\div</math> figs 119 and</li> <li><math>15 \leq \textit{their } k \text{ integer} \leq 17</math></li> </ul><br>20 $\div$ 1.19 may be at least 16 implied additions or subtractions of 1.19 |

| Question |     |  | Answer                   | Marks | Part marks and guidance                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|----------|-----|--|--------------------------|-------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 9        | (a) |  | [0]8 34 oe               | 2     | B1 for 14 [minutes]                                                                                                                                                                                                                                               | Accept any recognisable time format e.g. full stop, colon, gap and inclusion of am but not pm                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|          | (b) |  | 21                       | 3     | <p>FT <i>their</i> time added to 8.20 leading to answer in (a) or stated as cycling time in (a)</p> <p>B1 for 7 [minutes cycling] or <i>their</i> cycle time in (a) <math>\div 2</math></p> <p>M1 for <i>their</i> cycle time in (a) <math>\div 2 + 14</math></p> | <p>No FT if working not shown in (a) but <b>if 9.16 is answer in (a)</b> working does not need to be seen to FT</p> <p><b>Example</b><br/> <i>Their</i> time in (a) is 56 then<br/>           [cycling =] <math>(56 \div 2 =) 28</math> for <b>B1</b><br/>           [walking =] <math>(28 \div 2 =) 14</math><br/> <b>M1</b> for <math>28 + 14</math><br/> <b>3 marks</b> for answer 42 (check (a) = 9.16 or cycle time = 56)</p> <p>Here <math>28 \div 2 = 14</math> minutes to walk half the distance</p> <p>Must be correctly evaluated</p> |
| 10       | (a) |  | $h^4$ final answer       | 1     |                                                                                                                                                                                                                                                                   | Not $h4$ unless 4 <b>clearly</b> raised                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|          | (b) |  | $3g(f + 4)$ final answer | 2     | B1 for $3(fg + 4g)$ or $g(3f + 12)$                                                                                                                                                                                                                               | Allow e.g. 1f and inclusion of $\times$<br>Condone missing final bracket<br>Correct answer seen and then spoilt <b>B1</b>                                                                                                                                                                                                                                                                                                                                                                                                                       |
| 11       | (a) |  | Expression               | 1     |                                                                                                                                                                                                                                                                   | Allow any clear intention e.g. arrow to expression                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|          | (b) |  | Identity                 | 1     |                                                                                                                                                                                                                                                                   | Allow any clear intention e.g. arrow to identity                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |

| Question |     |  | Answer                                                                                                                                        | Marks | Part marks and guidance                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|----------|-----|--|-----------------------------------------------------------------------------------------------------------------------------------------------|-------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 12       | (a) |  | 22<br>23<br>55<br>8<br>7                                                                                                                      | 3     | <b>FT</b> <i>their</i> 22 – 14 for <i>their</i> 8<br><br><b>B2</b> for 3 correct<br>or<br><b>B1</b> for 2 correct                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|          | (b) |  | Tennis<br>and<br>[R=] 37      or 11 + 12 + 5 + 9<br>[S=] 20      or 3 + 5 + 5 + <i>their</i> 7<br>[T=] 43      or <i>their</i> 8 + 6 + 25 + 4 | 3     | <b>FT</b> <i>their</i> (a) even if NR<br><br><b>M2</b> for two from<br>[R=] 37    or 11 + 12 + 5 + 9<br>[S=] 20    or 3 + 5 + 5 + <i>their</i> 7<br>[T=] 43    or <i>their</i> 8 + 6 + 25 + 4<br>or<br><b>M1</b> for one from<br>[R=] 37    or 11 + 12 + 5 + 9<br>[S=] 20    or 3 + 5 + 5 + <i>their</i> 7<br>[T=] 43    or <i>their</i> 8 + 6 + 25 + 4<br><br>If 0 or 1 scored, instead award <b>SC2</b> for<br>Tennis = 43 which is 6 more than R and 23<br>more than S | Accept <i>their</i> most popular with<br><b>strict FT</b> from <i>their</i> three correct<br>totals for these sports<br>Sums must be correctly evaluated<br>May be on diagram<br>Accept labelled or in correct order<br>Check 13 + <i>their</i> 7<br>Check 35 + <i>their</i> 8<br><br>If (a) is NR, FT all marks.<br>The values will be:<br>[R=] 11 + 12 + 5 + 9 or 37<br>[S=] 3 + 5 + 5            or 13<br>[T=] 6 + 25 + 4           or 35<br>and the answer R[aftering] and the<br>sums or totals seen |

| Question |     |  | Answer                                                                                            | Marks    | Part marks and guidance                                                                                                                                                                                                                                         |                                                                                                                                                                                                        |
|----------|-----|--|---------------------------------------------------------------------------------------------------|----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|          | (c) |  | $\frac{57}{100}$ oe                                                                               | <b>2</b> | <p><b>FT</b> <i>their</i> 22 or 11 + 3 + <i>their</i> 8</p> <p><b>B1</b> for <i>their</i> 22 + 35 correctly evaluated or 57 seen</p> <p>If (a) is <b>NR</b>, award <b>SC1</b> for answer <math>\frac{35}{100}</math> oe or answer <math>\frac{1}{35}</math></p> | <p>Ignore attempts to change form<br/>Accept fraction, decimal (e.g. 0.57) and percentage (e.g. 57%) but not ratio nor in words</p> <p>For <b>B1</b>, condone <math>\frac{1}{57}</math> as 57 seen</p> |
|          | (d) |  | [That] these [100] children are representative of all children [who attend the adventure park] oe | <b>1</b> |                                                                                                                                                                                                                                                                 | See Appendix<br>Representative sample                                                                                                                                                                  |

| Question |     |  | Answer                                                     | Marks | Part marks and guidance                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|----------|-----|--|------------------------------------------------------------|-------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 13       | (a) |  | Jane<br><br>and<br><br>two correct values in the same form | 3     | <p>Reminder: mark at most accurate</p> <p><b>Method 1</b><br/> <b>B2</b> for 64% and <math>\frac{5}{8}</math> correct in a common form</p> <p>or</p> <p><b>B1</b> for one correct conversion</p> <p><b>Method 2</b><br/> Candidate chooses an integer amount of newspapers<br/> <b>B2</b> for <math>\left(64\% \text{ and } \frac{5}{8}\right)</math> of <i>their</i> amount correct<br/> or<br/> <b>B1</b> for <math>\left(64\% \text{ or } \frac{5}{8}\right)</math> of <i>their</i> amount correct</p> <p>If 0 scored, <b>SC1</b> for correct judgement for <i>their</i> incorrect conversion(s)</p> | <p>Condone 0.62 and 0.63 and 62[%] and 63[%]<br/> Sufficient to see just 62.5[%] to make comparison<br/> e.g. <math>\frac{128}{200}</math> and <math>\frac{125}{200}</math> or 0.64 and 0.625<br/> Condone bad form<br/> e.g. <math>\frac{12.8}{20}</math> and <math>\frac{12.5}{20}</math> or 64 and 62.5 or 6.4 and 6.25</p> <p>e.g. 0.625 or <math>\frac{125}{200}</math> or <math>\frac{128}{200}</math> or 62.5</p> <p>You will need to check <i>their</i> figures<br/> Answers can be non-integer<br/> e.g. Chooses 70<br/> <math>64\% = 44.8</math><br/> <math>\frac{5}{8} = 43.75</math><br/> Allow accuracy sufficient to make judgement and condone truncation</p> |
|          | (b) |  | 200                                                        | 2     | <p><b>B1</b> for answer 100<br/> or answer <math>200n</math> with <math>n</math> integer <math>&gt; 1</math></p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 400, 600, ...                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| 14       |     |  | 2.6 <                                                      | 2     | <p><b>B1</b> for each</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | <p>Do not accept other figures or symbols on line with correct answer<br/> Accept trailing zeros</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |



| Question |     |      | Answer                                                                 | Marks | Part marks and guidance                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                |
|----------|-----|------|------------------------------------------------------------------------|-------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 15       | (a) |      | The length is twice the width oe<br>or<br>The width is half the length | 1     |                                                                                                                                                                                                  | “Twice” or “double” or “half” is not enough unless it is clear that<br>length = $2 \times$ width<br>Accept $2k$ is double $k$ oe or $L = 2W$ oe<br>Do not accept values<br>or length = $2 \times k$<br>Mark the best response as long as it is not contradictory or has an incorrect statement |
|          | (b) |      | $2k^2 - g^2$ final answer                                              | 2     | M1 for $2k \times k - g \times g$ oe                                                                                                                                                             | Ignore units if included<br>oe for M1 may be e.g. $2k \times k - g^2$                                                                                                                                                                                                                          |
|          | (c) | (i)  | $6k$ final answer                                                      | 3     | B2 for correct answer unsimplified<br>or<br>B2 for $6k - 2g$ [+ $g + g$ ]<br>or<br>M2 for $2k + k + 2k - g + k - g$ [+ $g + g$ ]<br>oe<br>or<br>M1 for [height =] $k - g$ or [length =] $2k - g$ | Condone $6k + 0[g]$ for 3 marks<br>Accept in any order<br>Accept e.g. $2g$ for $g + g$<br><br>Identified or seen on diagram in correct position                                                                                                                                                |
|          |     | (ii) | 10.4 nfww                                                              | 2     | M1 for <i>their</i> part (i) = 62.4 or $\frac{62.4}{6}$                                                                                                                                          | <i>Their</i> part (i) must be algebraic in terms of $k$ or $k$ and $g$<br><i>Their</i> (a) can be rearranged<br>Note : $6k - 2g = 62.4$ scores M1 but does not score the second mark as from wrong working                                                                                     |

| Question |     | Answer                                 | Marks | Part marks and guidance                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                 |
|----------|-----|----------------------------------------|-------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 16       | (a) | Correct curve through given points     | 3     | <b>B2</b> for 6 points correctly plotted<br>or<br><b>B1</b> for 4 points correctly plotted                                                                                                | Half square accuracy.<br>Use overlay as guide<br><br>For curve:<br>No line segments used<br>Condone <b>minor</b> feathering or doubling<br>Max half square vertically or horizontally from any point                                                                                                                            |
|          | (b) | <i>their</i> –1.1 and <i>their</i> 2.6 | 2     | Strict <b>FT</b> from <i>their</i> graph.<br><br><b>B1</b> for each<br>or<br>ruled $y = 6$ cutting <i>their</i> curve twice<br>or<br>points indicated on <i>their</i> curve where $y = 6$ | Must have graph to score<br>Do not accept coordinates<br>Half square accuracy or better<br>For thick lines mark centre of line<br>Ruled line within half square of $y = 6$ throughout<br><i>Their</i> curve may be a polygon or straight line<br>If intersection at mid-point of small square e.g. –1.15<br>accept –1.2 or –1.1 |

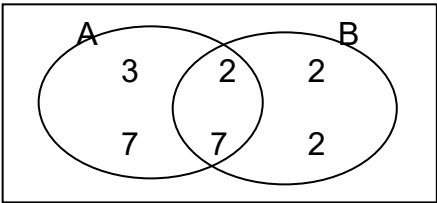
| Question | Answer                    | Marks | Part marks and guidance                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|----------|---------------------------|-------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 17       | 2160 with correct working | 5     | <p><b>Method 1</b></p> <p><b>M3</b> for <math>\frac{360}{5 \times 0.04}</math> oe may be implied by 1800</p> <p>or</p> <p><b>M2</b> for <math>\frac{360}{0.04}</math> oe or <math>\frac{360}{5} \div 4</math> or <math>\frac{360}{4} \div 5</math></p> <p>or</p> <p><b>M1</b> for <math>\frac{360}{5}</math> or <math>\frac{360}{4}</math></p> <p>or <math>\frac{P \times 4 \times 5}{100} = 360</math> oe</p> <p>AND</p> <p><b>M1dep</b> for <i>their</i> <math>1800 + 360</math></p> <p>OR <b>Method 2 Trials</b></p> <p><b>M2</b> for two complete trials bracketing 360 and resulting in <math>360 \pm 10</math></p> <p>or</p> <p><b>M1</b> for one complete trial <math>\neq 360</math></p> <p>If <b>0</b> or <b>1</b> scored, instead award <b>SC2</b> for 2160</p> <p>If <b>0</b> scored, <b>SC1</b> for £1661[.64]</p> <p>Correct working for 5 marks requires evidence of at least <b>M2</b></p> <p>N/C methods need labels or operators oe <math>360 = 1800 \times 5 \times (0.04 \text{ or } 4 / 100)</math> or <math>\frac{360}{20} \times 100</math> or N/C e.g.</p> <p><math>4\% = 72, 1\% = 18, 100\% = 1800</math> or <math>20\% = 360, 10\% = 180, 100\% = 1800</math> or <math>20\% = 360, 360 \times 5 = 1800</math> or <math>1 \text{ year} = 90, 1\% = 18, 100\% = 1800</math></p> <p>NB <math>360 \times 5 = 1800</math> <b>alone</b> scores <b>M0</b></p> <p>May be implied by 9000 or 18 or N/C e.g.</p> <p><math>4\% = 72, 1\% = 18</math> or <math>20\% = 360, 10\% = 180</math></p> <p>May be implied by 72 or 90 or N/C e.g.</p> <p><math>4\% = 72</math> or <math>20\% = 360</math></p> <p>“May be implied” tells you to look for the correct working associated with these values</p> <p><i>Their</i> 1800 dependent on <b>M3</b> and not spoiled</p> <p>Trials must show substitution and evaluation e.g.</p> <p><math>1850 \times 0.04 \times 5</math> oe = 370</p> <p><math>1750 \times 0.04 \times 5</math> oe = 350</p> <p>e.g. <math>500 \times 0.04 \times 5</math> oe = 100</p> <p>with no working or insufficient working</p> |

| Question |  |  | Answer                                                                                                                                                     | Marks        | Part marks and guidance                       |                                                                                                                                                                                                                                                                                                                                                                                      |
|----------|--|--|------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|-----------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 18       |  |  | <i>BPC</i> or <i>CPB</i> and [vertically] opposite                                                                                                         | <b>B2</b>    | <b>B1</b> for <i>BPC</i> or <i>CPB</i>        | Must use 3-letter notation                                                                                                                                                                                                                                                                                                                                                           |
|          |  |  | <i>DAP</i> or <i>PAD</i> <i>CBP</i> or <i>PBC</i> alternate                                                                                                | <b>B1</b>    | Must have angle and reason                    | Condone <ul style="list-style-type: none"> <li><i>A</i> and <i>B</i> if clear for e.g. <i>A</i> for <i>PAD</i> and <i>B</i> for <i>CBP</i></li> <li>Changed order e.g. <i>CBP</i> and <i>PAD</i></li> <li>Use of <i>B</i> or <i>C</i> for <i>P</i> e.g. <i>DAB</i> for <i>DAP</i></li> </ul> For reason, condone poor spelling (alternative) and accept “third angle in triangle” oe |
|          |  |  | AAA oe                                                                                                                                                     | <b>B1dep</b> | Dependent on previous <b>B2</b> and <b>B1</b> | Accept completely correct statements e.g. “All corresponding angles equal” but not “All angles equal” or “They have the same angles”<br>See Appendix                                                                                                                                                                                                                                 |
| 19       |  |  | Two from: <ul style="list-style-type: none"> <li>Horizontal scale uneven</li> <li>No vertical scale</li> <li>Vertical scale does not start at 0</li> </ul> | <b>2</b>     | <b>B1</b> for each                            | See Appendix<br>Mark the best part of a statement if no contradiction<br>If more than two reasons (often two in one statement), mark the worst two                                                                                                                                                                                                                                   |

| Question |  |  | Answer  | Marks | Part marks and guidance                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                             |
|----------|--|--|---------|-------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 20       |  |  | 18 nfww | 3     | <p><b>B2</b> for answer <math>\frac{18}{99}</math></p> <p>or</p> <p><b>M2</b> for <math>\frac{2 \times 99}{11}</math> oe</p> <p>or</p> <p><b>B1</b> for <math>\frac{2}{11}</math></p> <p>or</p> <p><b>M1</b> for <math>[k \times] \frac{99}{11}</math></p> <p>or</p> <p><b>M1</b> for <math>\frac{a}{b} \times 99</math></p> | <p>e.g. <math>\frac{99}{11} = 9</math> and then <math>2 \times 9</math></p> <p>For <b>B1</b> accept <math>\frac{2}{11}</math>, 0.181 to 0.182 or 18.1% to 18.2%</p> <p>Condone <math>k</math> as 0.5 or 1 or an integer <math>3 \leq k \leq 10</math></p> <p>Do not imply <b>M1</b> from just 9 seen</p> <p><math>0 &lt; \frac{a}{b} &lt; 1</math> and either <math>a = 2</math> or <math>b = 11</math></p> |

| Question |     |      | Answer                                                           | Marks             | Part marks and guidance                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                    |
|----------|-----|------|------------------------------------------------------------------|-------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 21       | (a) | (i)  | 30 nfw                                                           | 4                 | <p><b>M1</b> for <math>5 \times 150</math> implied by 750 [km]</p> <p><b>M2</b> for <i>their</i> <math>750 \div (2.5 \times 10)</math> oe<br/>or<br/><b>M1</b> for <math>2.5 \times 10</math> implied by 25</p> <p>OR</p> <p><b>M1</b> for <math>5 \times 150</math> implied by 750 [km]</p> <p><b>M2</b> for <i>their</i> <math>750 \div 2.5 \div 10</math> oe<br/>or<br/><b>M1</b> for <i>their</i> <math>750 \div 2.5</math> implied by 300</p> | <p>Not from <math>150 \div 5</math><br/>A correct answer in working, subsequently spoilt, scores max <b>M1M1</b></p> <p><i>Their</i> 750 from attempt at <math>5 \times 150</math><br/>Condone 150 for <i>their</i> 750</p> <p><i>Their</i> 750 from attempt at <math>5 \times 150</math><br/>Condone 150 for <i>their</i> 750</p> |
|          |     | (ii) | Correct reason indicating roads/paths unlikely to be straight oe | 1                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                    | See Appendix                                                                                                                                                                                                                                                                                                                       |
|          | (b) |      | <p>The units are not the same oe</p> <p>[1 :] 15 000 000</p>     | <p>1</p> <p>1</p> |                                                                                                                                                                                                                                                                                                                                                                                                                                                    | <p>See Appendix<br/>eg should have multiplied by 100 000 or one is cm and the other is km<br/>Condone:</p> <ul style="list-style-type: none"> <li>poorly placed zero separators<br/>e.g. 150, 000, 00</li> <li>correct other forms</li> <li>inclusion of units</li> </ul>                                                          |

| Question |     | Answer                                                                                                                                                                                                                                                                                                                                              | Marks                                                                  | Part marks and guidance                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |  |
|----------|-----|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| 22       | (a) | <p>[angle =] 36 or 54</p> <p><math>[h =] \frac{6}{\tan 36}</math> or <math>6 \times \tan 54</math> or <math>\frac{6\sin 54}{\sin 36}</math></p> <p>may be implied by 8.258 to 8.259 or 8.26 following <b>M1</b> but <b>not</b> from area</p> <p><math>10 \times \frac{1}{2} \times 6 \times \text{their } h</math> oe</p> <p>247.748 to 247.749</p> | <p><b>B1</b></p> <p><b>M2</b></p> <p><b>M2dep</b></p> <p><b>A1</b></p> | <p>Allocate marks similarly for other methods such as five triangles using an angle of 72. If in doubt consult TL</p> <p>There must be evidence of angle or trig work to score any marks e.g. working back from 247.75 to <math>h = 8.258\dots</math> is likely to score 0 or B1</p> <p>in correct place if only shown on diagram</p> <p><b>M1</b> for <math>\tan 36 = \frac{6}{h}</math> or <math>\tan 54 = \frac{h}{6}</math><br/>or <math>\frac{6}{\sin 36} = \frac{h}{\sin 54}</math> or <math>\frac{\sin 36}{6} = \frac{\sin 54}{h}</math></p> <p><b>M1</b> for <math>\frac{1}{2} \times 6 \times \text{their } h</math> oe may be implied by 24.774 to 24.775</p> <p>Do not award 36 or 54 if calculated as an area</p> <p>Accept other notation for 'h'</p> <p><i>Their h dep</i> on previous <b>M2</b> or <b>M1</b></p> <p>Accept correct use of <math>\frac{1}{2}ab\sin C</math></p> |  |
|          | (b) | 5.45 or 5.449 to 5.450 nfw                                                                                                                                                                                                                                                                                                                          | <b>3</b>                                                               | <p><b>M2</b> for <math>h = \frac{450 \times 3}{247.75}</math> oe</p> <p>or</p> <p><b>M1</b> for <math>\frac{1}{3}h \times 247.75 = 450</math> oe</p> <p>247.75 may be <i>their</i> more accurate 247.748 to 247.749 or 247.7 247.8 or 247.74 from (a)</p> <p>Use of incorrect formula is not <b>MR</b></p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |  |

| Question |     |  | Answer | Marks | Part marks and guidance                                                                                                                                                                                                                                                |                                                                                                                      |
|----------|-----|--|--------|-------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------|
| 23       | (a) |  | 1176   | 2     | <p><b>M1</b> for <math>2^3 \times 3 \times 7^2</math> oe<br/>or for</p>  <p>or for listing at least 3 correct in each list<br/>294, 588, 882, ...<br/>AND<br/>56, 112, 168, ...</p> | <p>e.g. <math>2 \times 2 \times 2 \times 3 \times 7 \times 7</math></p> <p>Accept no box but need to see A and B</p> |
|          | (b) |  | 13 nfw | 2     | <p><b>M1</b> for <math>[26 =] \quad 2 [\times] \quad 13</math> oe</p>                                                                                                                                                                                                  | <p>For <b>M1</b> accept 2, 13 or similar possibly seen in a factor tree, diagram etc</p>                             |



**APPENDIX**

Non Calculator methods for percentages.

Labels only

This is when labels such as 10% = are used.

If only labels are used the final answer scores full marks if it is correct.

Condone a numerical slip if the answer is correct.

If there is an error in the values and so the **final answer is incorrect** this cannot score method marks

e.g. Find 65% of 80

Method scoring M1A1

$$10\% = 8$$

$$5\% = 4$$

$$50\% = 40$$

$$65\% = 52 \quad \checkmark \quad \text{M1A1}$$

$$10\% = 8$$

$$5\% = 5 \quad \times$$

$$50\% = 40$$

$$65\% = 52 \quad \checkmark \quad \text{M1A1}$$

condone this slip as answer correct

Method scoring M0A0

$$10\% = 8$$

$$5\% = 6 \quad \times$$

$$50\% = 40$$

$$65\% = 54 \quad \times \quad \text{M0}$$

Do not condone this slip as answer incorrect

Build up method

This is where the candidate finds the percentages to build up to the required value but shows the operations used.

e.g. Find 65% of 80

$$10\% = 80 \div 10 = x$$

$$5\% = x \div 2 = y$$

$$50\% = x \times 5 = z$$

$$65\% = x + z + y$$

Because the operations have been shown and they are correct, if there is an error in one of x, y or z, method marks can still be earned

**Appendix****Question 12d**

| <b>Assumption</b>                                                                             | <b>Mark</b> | <b>Reason</b>                                                                      |
|-----------------------------------------------------------------------------------------------|-------------|------------------------------------------------------------------------------------|
| All children choose in the same way as these children                                         | <b>1</b>    | Has the idea of a representative sample                                            |
| Every group of 100 will chose the same options every time                                     | <b>1</b>    | BOD does not say “in the same proportion” but implies representative sample        |
| 45% of children that weren’t in the 100 would choose football                                 | <b>1</b>    | Indicates representative sample                                                    |
| That every child that turns up for the adventure park will choose the same options as the 100 | <b>1</b>    | BOD. Does not say “in the same way as the 100” but indicates representative sample |
| The same proportions apply to all other children coming to the park                           | <b>1</b>    | Representative sample                                                              |
| Because 45 is 45% of every 100 children that come to the park                                 | <b>1</b>    | Representative sample                                                              |
| 45%/0.45 of ALL children will choose football                                                 | <b>0</b>    | Repeats question                                                                   |

Examples of methods used for Q17 (There will be more)

When candidates say “4% =” they should mean “4% of the amount invested =”  
and not “4% of 360 =”

Make a professional judgement if this is correct.

$360 \times 1.04$  or  $360 \times 0.04$  are good indicators of error.

4% of 360 = 14.40 and then  $14.40 \times 5 = 72$  is **wrong method** because they are finding 4% of the interest and not 4% of the original amount.

In the examples below, the M marks are earned by the statement **with those** preceding it.  
Not just for the statement.

In some methods, **M2** evidence can never seen

|                           |           |    |                          |
|---------------------------|-----------|----|--------------------------|
| $360 \div 5 (= 72)$       | <b>M1</b> | or | $20\% = 360$             |
|                           |           |    | $4\% = 72$ <b>M1</b>     |
| $(72) \times 25 = (1800)$ | <b>M3</b> | or | $100\% = 1800$ <b>M3</b> |

|                            |           |    |                          |
|----------------------------|-----------|----|--------------------------|
| $360 \div 5 (= 72)$        | <b>M1</b> | or | $20\% = 360$             |
|                            |           |    | $4\% = 72$ <b>M1</b>     |
| $(72) \div 4 (= 18)$       | <b>M2</b> | or | $1\% = 18$ <b>M2</b>     |
| $(18) \times 100 = (1800)$ | <b>M3</b> | or | $100\% = 1800$ <b>M3</b> |

|                            |           |    |                                 |
|----------------------------|-----------|----|---------------------------------|
| $360 \div 4 (= 90)$        | <b>M1</b> | or | $20\% = 360$                    |
|                            |           |    | $1 \text{ year} = 72$ <b>M1</b> |
| $(90) \div 5 (= 18)$       | <b>M2</b> | or | $1\% = 18$ <b>M2</b>            |
| $(18) \times 100 = (1800)$ | <b>M3</b> | or | $100\% = 1800$ <b>M3</b>        |

|                            |           |    |                          |
|----------------------------|-----------|----|--------------------------|
| $360 \div 20 (= 18)$       | <b>M2</b> | or | $20\% = 360$             |
|                            |           |    | $1\% = 18$ <b>M2</b>     |
| $(18) \times 100 = (1800)$ | <b>M3</b> | or | $100\% = 1800$ <b>M3</b> |

|                            |           |    |                          |
|----------------------------|-----------|----|--------------------------|
| $360 \div 4 (= 90)$        | <b>M1</b> | or | $20\% = 360$             |
|                            |           |    | $5\% = 90$ <b>M1</b>     |
| $(90) \div 5 (= 18)$       | <b>M2</b> |    |                          |
| $(18) \times 100 = (1800)$ | <b>M3</b> | or | $100\% = 1800$ <b>M3</b> |

|                            |           |    |                          |
|----------------------------|-----------|----|--------------------------|
| $360 \times 100 = (36000)$ |           | or | $20\% = 360$             |
| $(36\ 000) \div 5 = 7200$  | <b>M1</b> |    | $5\% = 90$ <b>M1</b>     |
|                            |           |    | $500\% = 9000$           |
| $(7200) \div 4 = 1800$     | <b>M3</b> |    | $100\% = 1800$ <b>M3</b> |

Note: the scheme say “May be implied by 72” but, as shown in the example above, 72 can come from wrong method. 72 is a good guide to look for supporting evidence to judge if the figure comes from correct method.

## Question 18

| Reason                                     | Mark | Reason              |
|--------------------------------------------|------|---------------------|
| Corresponding [pairs of] angles are equal  | 1    |                     |
| Matching angles in the triangles are equal | 1    |                     |
| They have the same angles                  | 0    | Not specific enough |
| All angles equal                           | 0    | Not true            |

## Question 19

| Reason                                                                                            | Mark | Reason                                                                           |
|---------------------------------------------------------------------------------------------------|------|----------------------------------------------------------------------------------|
| It doesn't have months for each year. Only a few for 2023                                         | 1    |                                                                                  |
| There are no numbers on the y axis                                                                | 1    |                                                                                  |
| As it doesn't have all the numbers going up the side of electricity                               | 1    |                                                                                  |
| The dates keep skipping from years to months and back again                                       | 1    |                                                                                  |
| It has months instead of years for 2023                                                           | 1    |                                                                                  |
| Some years have months labelled                                                                   | 1    | Implies others do not                                                            |
| The x axis dates are uneven distances apart                                                       | 1    | Condone x-axis                                                                   |
| x-axis goes up by different amounts                                                               | 1    | BOD recognising uneven scale                                                     |
| The y-axis doesn't have any data                                                                  | 1    | BOD means not having any numbers                                                 |
| 2023 has four sections but the other years only have one                                          | 1    | Recognises inconsistent scale                                                    |
| The y axis doesn't start from 0                                                                   | 1    | Condone reference to y axis                                                      |
| 8 kWh is very far away from 10 kWh making it look like a big difference where in reality it isn't | 1    | BOD implies "because vertical scale does not start at 0"                         |
| The scale of kWh has a large space between 8 and 10                                               | 1    | BOD implies "because vertical scale does not start at 0"                         |
| More results for 2023                                                                             | 1    | Correct because it shows the monthly figures                                     |
| It misses out a couple of months                                                                  | 0    | Could be referring to [Jan] Feb, Mar, [April]                                    |
| The graphs is in months                                                                           | 0    | Wrong as the graph also has years. Statement doesn't recognise the uneven scale. |
| The axis doesn't start from 0                                                                     | 0    | y axis not referenced                                                            |
| On the x axis, there's a fluctuation/jagged line on the line                                      | 0    |                                                                                  |
| Doesn't show the numbers                                                                          | 0    | Vertical axis not referenced                                                     |
| The y-axis isn't labelled                                                                         | 0    | It is labelled but does not have a scale                                         |
| The graph is on a small scale/ It's not drawn to scale                                            | 0    | Do not accept reference to "drawn to scale"                                      |

## Question 21a(ii)

| Reason                                                                  | Mark | Reason                                                                 |
|-------------------------------------------------------------------------|------|------------------------------------------------------------------------|
| In real life Heidi will not be able to walk in a straight line          | 1    | Implies distance increases                                             |
| Roads aren't straight                                                   | 1    | Implies distance increases                                             |
| She doesn't consider buildings in the way of the straight line distance | 1    | Implies "not a straight line"                                          |
| The km are estimated as 750 where it is not in real life                | 0    | Correct but does not reference using a direct distance                 |
| She may have to go a different route                                    | 0    | Doesn't say that the overall distance may be greater (than calculated) |
| <b>Do not accept</b>                                                    |      |                                                                        |
| Average speed is just an estimate                                       | 0    | Do not address error in method of using straight-line distance         |
| Because it's a decimal so doesn't give an exact number of days          | 0    |                                                                        |
| Because it seems unrealistic                                            | 0    |                                                                        |
| She will get tired/slow down/toilet stops                               | 0    |                                                                        |
| There is not enough information                                         | 0    |                                                                        |
| Rounded down                                                            | 0    |                                                                        |

## Question 21b

| Reason                                                               | Mark | Reason                                                                                                                                                |
|----------------------------------------------------------------------|------|-------------------------------------------------------------------------------------------------------------------------------------------------------|
| Kilometres is not the same as cm                                     | 1    | BOD recognises the different units                                                                                                                    |
| Not converting km to cm                                              | 1    |                                                                                                                                                       |
| Not converting to the same units                                     | 1    | “Not converting the units” is not enough                                                                                                              |
| The 1 and 150 aren’t both cm                                         | 1    | BOD implies different units                                                                                                                           |
| They are in different measurements                                   | 1    | BOD condone “measurements” oe for “units”                                                                                                             |
| He hasn’t used units making it seem 1 cm = 150 cm                    | 1    | BOD the missed out “the same” as explained by the example.<br>The words before 1 cm...are not enough                                                  |
| If it was 1 : 150 then 1 cm would be 1.5 metres                      | 1    | Shows statement is incorrect                                                                                                                          |
| There are 1000 cm in 1 km so he didn’t convert                       | 1    | Incorrect factor but recognises no conversion and does link cm and km implying “between them”<br>(The incorrect factor penalised by wrong 15 000 000) |
| You can’t have two different measurements in the same ratio          | 1    | BOD condone “measurements” oe for “units”                                                                                                             |
| It needs to be in cm                                                 | 1    | BOD “The ratio” needs to be “all” in cm                                                                                                               |
| He did not convert the km to cm correctly                            | 1    | BOD references km and cm and conversion                                                                                                               |
| He did not use scale correctly and so has made 150 cm and not 150 km | 1    | BOD Implies not in same units                                                                                                                         |
| He wrote it as 1 cm to 150 cm not km                                 | 1    | BOD Implies not in same units                                                                                                                         |
| Because cm and km are / are not the same scale                       | 0    | Incorrect use of scale and the meaning is unclear                                                                                                     |
| He did not convert the units                                         | 0    | Needs to say “to the same units”                                                                                                                      |
| He undervalues the 150 km in the ratio                               | 0    | Doesn’t explain how or why                                                                                                                            |
| It doesn’t show the units so it would be inaccurate                  | 0    | Doesn’t recognise different units                                                                                                                     |

## Need to get in touch?

If you ever have any questions about OCR qualifications or services (including administration, logistics and teaching) please feel free to get in touch with our customer support centre.

### Call us on

**01223 553998**

### Alternatively, you can email us on

**support@ocr.org.uk**

### For more information visit



**ocr.org.uk/qualifications/resource-finder**



**ocr.org.uk**



**Twitter/ocrextams**



**/ocrextams**



**/company/ocr**



**/ocrextams**



**CAMBRIDGE**  
UNIVERSITY PRESS & ASSESSMENT

OCR is part of Cambridge University Press & Assessment, a department of the University of Cambridge.

For staff training purposes and as part of our quality assurance programme your call may be recorded or monitored. © OCR 2024 Oxford Cambridge and RSA Examinations is a Company Limited by Guarantee. Registered in England. Registered office The Triangle Building, Shaftesbury Road, Cambridge, CB2 8EA.

Registered company number 3484466. OCR is an exempt charity.

OCR operates academic and vocational qualifications regulated by Ofqual, Qualifications Wales and CCEA as listed in their qualifications registers including A Levels, GCSEs, Cambridge Technicals and Cambridge Nationals.

OCR provides resources to help you deliver our qualifications. These resources do not represent any particular teaching method we expect you to use. We update our resources regularly and aim to make sure content is accurate but please check the OCR website so that you have the most up-to-date version. OCR cannot be held responsible for any errors or omissions in these resources.

Though we make every effort to check our resources, there may be contradictions between published support and the specification, so it is important that you always use information in the latest specification. We indicate any specification changes within the document itself, change the version number and provide a summary of the changes. If you do notice a discrepancy between the specification and a resource, please [contact us](#).

Whether you already offer OCR qualifications, are new to OCR or are thinking about switching, you can request more information using our [Expression of Interest form](#).

Please [get in touch](#) if you want to discuss the accessibility of resources we offer to support you in delivering our qualifications.