



Oxford Cambridge and RSA

# Foundation

**GCSE**

**Mathematics - Paper 2**

**J560/02: Paper 2 (Foundation tier)**

General Certificate of Secondary Education

**Mark Scheme for November 2023**

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 2023

## MARKING INSTRUCTIONS

### PREPARATION FOR MARKING

### RM ASSESSOR

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. There is a NR (No Response) option. Award NR (No Response)
- if there is nothing written at all in the answer space
  - OR if there is a comment which does not in any way relate to the question (e.g. 'can't do', 'don't know')
  - OR if there is a mark (e.g. a dash, a question mark) which is not an attempt at the question.



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).

9. 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.

10. 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.
11. Annotations available in RM Assessor. These **must** be used whenever appropriate during your marking.

| Annotation  | Meaning          |
|---|------------------|
|  | Correct          |
|  | Incorrect        |
| <b>BOD</b>  | Benefit of doubt |
| <b>FT</b>   | Follow through   |

|             |   |
|-------------|---|
| <b>ISW</b>  | Ignore subsequent working (after correct answer obtained), provided method has been completed |
| <b>M0</b>   | Method mark awarded 0   |
| <b>M1</b>   | Method mark awarded 1   |
| <b>M2</b>   | Method mark awarded 2   |
| <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**

12. **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.
13. 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.
14. 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.
15. 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.
16. 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.  $FT\ 180 \times (their\ '37' + 16)$ , or  $FT\ 300 - \sqrt{(their\ '52 + 72)}$ . Answers to part questions which are being followed through are indicated by

e.g.  $FT\ 3 \times their\ (a)$ .

17. 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'.
18. 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.
19. 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.
20. 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.
21. 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.
  22. 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.
  23. Ranges of answers given in the mark scheme are always inclusive.
  24. 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.
  25. If in any case the mark scheme operates with considerable unfairness consult your Team Leader.



| Question |     |      | Answer                      | Marks | Part marks and guidance   |   |
|----------|-----|------|-----------------------------|-------|---|---|
| 1        | (a) |      | 4500                        | 1     |   | Condone additional superfluous zeros<br>e.g. 4500.0   |
| 1        | (b) |      | [0].37                      | 1     |   | Condone additional superfluous zeros  |
| 1        | (c) |      | 4.15                        | 1     |   |   |
| 1        | (d) |      | [0].46                      | 1     |   | Condone additional superfluous zeros  |
| 2        | (a) | (i)  | 40                          | 1     |   | Condone 40.0  |
| 2        | (a) | (ii) | 25 [%]                      | 1     |   |   |
| 2        | (b) |      | $\frac{3}{10}$ final answer | 2     | M1 for $\frac{36}{120}$ or better   |   |
| 3        | (a) |      | $1\frac{1}{3}$ cao          | 2     | M1 for $\frac{4}{3}$ oe   |   |
| 3        | (b) |      | 2 final answer              | 2     | M1 for $\frac{1}{4} \times \frac{8}{1}$ or better<br>or for $\frac{2}{8} \div \frac{1}{8}$ oe                                     | e.g. $\frac{8}{4}$ scores M1<br>Condone $\frac{1}{0.5}$ or $\frac{2}{1}$ for M1<br><br>Allow equivalents where denominator is multiple of 8 |
| 4        | (a) |      | 35 (mm)                     | 1     |   |   |
| 4        | (b) |      | 7 : 11 final answer         | 2     | B1 for 35 : 55<br>or<br>B1FT for <i>their</i> (a) : 55 or 35 : <i>their</i> 55  | Where <i>their</i> 55 is between 50 and 60 inclusive  |
| 4        | (c) |      | 50                          | 3     | M2 for $70 + \text{their } (a) - \text{their } 55$<br>or M1 for $70 + \text{their } (a)$<br><br>If 0 scored SC1 for 70, 35 and 55 | M1 Implied by 105<br><br>SC could be seen on the graph or in parts (a) and/or (b)   |

| Question |     | Answer  | Marks | Part marks and guidance  |   |    |    |     |    |    |     |   |   |   |
|----------|-----|---|-------|--|---|----|----|-----|----|----|-----|---|---|---|
| 5        |     | <table border="1"> <tr> <td>×</td> <td>-5</td> <td>9</td> </tr> <tr> <td>-4</td> <td>20</td> <td>-36</td> </tr> <tr> <td>-6</td> <td>30</td> <td>-54</td> </tr> </table>                        | ×     | -5   | 9   | -4 | 20 | -36 | -6 | 30 | -54 | 3 | <p><b>B1</b> for -36</p> <p><b>B1</b> for -6</p> <p><b>B1 FT</b> for <i>their</i> -6 x -5 evaluated</p> | Do not accept 30 from incorrect factor pair |
| ×        | -5  | 9   |       |  |   |    |    |     |    |    |     |   |   |   |
| -4       | 20  | -36   |       |  |   |    |    |     |    |    |     |   |   |   |
| -6       | 30  | -54   |       |  |   |    |    |     |    |    |     |   |   |   |
| 6        |     | 70  | 3     | <p><b>M2</b> for <math>(50 \times 3) - (32 + 48)</math> oe</p> <p>or</p> <p><b>M1</b> for <math>50 \times 3</math></p> <p>or for <math>\frac{32+48+c}{3} = 50</math> or better</p>                                 | <p>M1 implied by 150</p> <p>Accept any letter or symbol for missing age</p>   |    |    |     |    |    |     |   |   |   |
| 7        |     | <p><math>\frac{16}{25}</math> with two correct values in the same form:</p> <p>64% [with 65%]</p> <p>Or <math>\frac{64}{100}</math> and <math>\frac{65}{100}</math></p> <p>Or 0.64 and 0.65</p> | 3     | <p><b>B2</b> for 64% or <math>\frac{64}{100}</math> and <math>\frac{65}{100}</math> or 0.64 and 0.65</p> <p>or</p> <p><b>B1</b> for <math>\frac{64}{100}</math> or <math>\frac{65}{100}</math> or 0.64 or 0.65</p> | <p>Any incorrect statement scores Max B2</p> <p>Condone <math>\frac{16}{25}</math> with <math>\frac{16.25}{25}</math> for 3 marks</p> |    |    |     |    |    |     |   |   |   |
| 8        | (a) | 48.4  | 1     |  | Allow 048.4[0]  |    |    |     |    |    |     |   |   |   |
| 8        | (b) | [0]3.02   | 2     | <b>M1</b> for $12.08 \div 4$ oe  |   |    |    |     |    |    |     |   |   |   |

| Question |     | Answer     | Marks | Part marks and guidance   |   |
|----------|-----|------------|-------|---|---|
| 9        | (a) | 2.25       | 2     | <p><b>M1</b> for <math>1.80 \div 4</math> [<math>\times 5</math>] oe<br/>or for <math>180 \div 4</math> [<math>\times 5</math>] oe</p> <p>If 0 scored <b>SC1</b> for answer of 225 on answer line</p>   | Condone 225p as final answer in working space or answer line if £ sign is crossed out for 2 marks.  |
| 9        | (b) | £5.60      | 3     | <p><b>B2</b> for 560 or 5.84 or 5.6</p> <p>OR</p> <p><b>M2</b> for <math>8 \times \textit{their} 0.7</math><br/>or <math>70 \times \textit{their} 8</math><br/>or <math>0.7 \times \textit{their} 8</math></p> <p>or</p> <p><b>B1</b> for one of 8 or 70 or 0.7</p> | <p>lsw rounding after 5.60 3 marks</p> <p><i>their</i> 0.7 can be 70, 73, 0.73 only<br/><i>their</i> 8 can be 8.2 or 8.5 only</p> <p>Condone trailing 0's after rounding e.g. 8.0</p> |
| 10       | (a) | Expression | 1     |   |   |
| 10       | (b) | Equation   | 1     |   |   |
| 11       |     | 17         | 4     | <p><b>B3</b> for 40</p> <p>OR</p> <p><b>M2</b> for <math>\frac{3}{8} = \frac{15}{n}</math> or <math>15 \div 3 \times 8</math></p> <p>or <b>M1</b> for <math>15 \div 3</math> oe</p> <p><b>M1</b> for <i>their</i> <math>40 - (15+8)</math></p>                      | Allow embedded calculation $3 \times 5 = 15$ or list of multiples [3],6,9,12,15 with no extras  |

| Question |     |      | Answer   | Marks | Part marks and guidance  |  |
|----------|-----|------|--|-------|--|--|
| 12       | (a) | (i)  | $x = 59$ and <u>alternate angles</u> [are equal]     | 2     | B1 for each  | Alternative Explanation:<br><u>Co-interior/Allied Angles</u> [add to 180] and <u>Angles on a Straight Line =180</u><br><br><u>Corresponding Angles</u> [are equal] and <u>Angles on a Straight Line =180</u> |
| 12       | (a) | (ii) | $y = 42$ and <u>corresponding angles</u> [are equal] | 2     | B1 for each  | Alternative Explanation:<br><u>Co-interior/Allied Angles</u> [add to 180] and <u>Angles on a Straight Line =180</u><br><br><u>Alternate Angles</u> [are equal] and <u>Angles on a Straight Line =180</u>     |
| 12       | (b) |      | 101  | 2     | B1 for 79<br>or<br>M1 for $59 + 42$ oe   | 79 could be seen in a correct position of the diagram but not on answer line.  |
| 13       | (a) |      | 81   | 2     | B1 for $3 \times 3 \times 3 \times 3$ soi  | e.g. $3^2 \times 3^2$ or $9 \times 9$  |
| 13       | (b) |      | $5x$ final answer                                    | 1     |  | Do not accept $\frac{5x}{1}$ but condone $5x^1$  |
| 13       | (c) |      | $x = 5y - 10$ or $x = 5(y - 2)$<br>final answer      | 2     | B1 for answer $5y - 10$ or $5(y - 2)$<br>or<br>M1 for a correct first step<br>$5y = x + 10$ or $y - 2 = \frac{x}{5}$<br><br>If 0 scored <b>SC1</b> for correct step to final answer<br>FT incorrect first step | SC only awarded for 2 step attempts  |

| Question |     |      | Answer  | Marks | Part marks and guidance   |  |
|----------|-----|------|---|-------|---|--|
| 14       | (a) |      | No with the graph is not rising month on month as they are flat in June and/or dip in July oe | 1     |   | Allow for comment on either the flat <b>or</b> dip in the graph<br>e.g. sales fell between July and August<br>Do not accept incorrect statements<br><br>See Appendix 1 |
| 14       | (b) |      | No with no vertical scale numbering so cannot see if sales have doubled oe                    | 1     |   | Accept:<br>No with no values/data/figures/numbers/%s shown [on sales axis]<br><br>See Appendix 2   |
| 15       |     |      | Reflection in $x = 1$   | 2     | <b>B1</b> for each<br><br>If 0 scored, <b>SC1</b> for $x = 1$ drawn | Extra transformations score zero<br>Additional properties treat as choice<br>Condone for 2 marks<br>e.g. Reflection, centre $x = 1$                                    |
| 16       | (a) | (i)  | 24  | 1     |   |  |
| 16       | (a) | (ii) | No [because] 402 is not a multiple of 4 oe  | 1     |   | See Appendix 3   |
| 16       | (b) | (i)  | 8   | 1     |   |  |
| 16       | (b) | (ii) | Multiply by 2 oe  | 1     |   | See Appendix 4   |

| Question |     | Answer                  | Marks | Part marks and guidance   |   |
|----------|-----|-------------------------|-------|---|---|
| 17       |     | 50 with correct working | 4     | <p><b>B2</b> for 2400<br/>or <b>M1</b> for <math>\frac{15}{100} \times 16000</math> oe<br/><b>M1</b> for <math>(17400 - \text{their } 2400) \div 300</math> oe</p> <p>If <b>0</b> or <b>M1</b> scored, instead award<br/><b>SC2</b> for answer 50 with no or insufficient working<br/>If <b>0</b> scored, instead award<br/><b>SC1</b> for 15 000 with no or insufficient working</p> | <p>“Correct working” requires evidence of at least <b>B2</b> or <b>M1M1</b> or alternate convincing approach</p> <p>For M1 not <math>15\% \times 16000</math> alone<br/>Allow repeated addition of 300 need 5 additions, condone 1 error. Could e.g. start 2400 and try to add on to make 17400</p> <p>Candidates who use 17400 throughout treat as MR (see marking instructions)<br/>B2 for 2610 (15%)<br/>and answer 49.3 condone rounded to 49 or answer 50 if multiples of 300 are used instead of division</p> |
| 18       | (a) | 25[%]                   | 2     | <b>M1</b> for $\frac{4}{1+4+11} [\times 100]$ oe  |   |
| 18       | (b) | 128                     | 4     | <p><b>M1</b> for <math>24 \div (4 - 1)</math> oe<br/>and<br/><b>M2</b> for <math>8 \times (1 + 4 + 11)</math> oe<br/>or for 8, 32 and 88<br/>or <b>M1</b> for <i>their</i> <math>8 \times (1 + 4 + 11)</math> oe<br/>or <i>their</i> 8, <math>4 \times \text{their } 8</math> and <math>11 \times \text{their } 8</math> evaluated</p>  | <p>Implied by 8 [red]</p> <p><i>their</i> 8 must be an integer<br/>and if 6 or 24 implied by 96 or 384</p>  |
| 19       |     | 630                     | 2     | <b>M1</b> for $900 \times 0.7$  | <p>Alternative in Kg:<br/>0.63[0] for 2 marks<br/>or<br/><b>M1</b> <math>900 \times 0.0007</math></p>   |
|          |     | g or grams              | 1     |   | If Alternative Method used A1 for Kg  |

| Question |  | Answer        | Marks | Part marks and guidance  |   |
|----------|--|---------------|-------|--|---|
| 20       |  | Correct graph | 3     | <p>Curves must not be joined, nor touch either axis except at <math>x = -3</math>,</p> <p><b>B2</b> for 7 or 8 correct plots<br/>or<br/><b>B1</b> for 5 or 6 correct plots</p> | <p>Use overlay as a guide accuracy <math>\pm \frac{1}{2}</math> box radially<br/>Mark curve first<br/>Condone slight feathering<br/>No ruled segments</p> <p>If no plot, curve implies plot</p> <p>Condone continuation of graph after <math>(-1, -4)</math> or before <math>(1, 8)</math> if graph continues to decrease/increase and does not touch <math>y</math>-axis</p> |

| Question |  | Answer                   | Marks | Part marks and guidance   |   |
|----------|--|--------------------------|-------|---|---|
| 21       |  | 200 with correct working | 6     | <p><b>M1</b> for <math>2(x + 2) = 3x - 4</math> oe<br/> <b>M1</b> for reaching <math>ax = b</math> FT <i>their</i> equation<br/> <b>A1</b> for <math>x = 8</math></p> <p>OR</p> <p><u>Trials</u><br/> <b>M1</b> for one trial into <math>2(x + 2)</math> and <math>3x - 4</math> evaluated correctly<br/> <b>M1</b> for two trials of <math>2(x + 2)</math> and <math>3x - 4</math> evaluated correctly<br/> <b>A1</b> for <math>[w = ] 10</math> and <math>[l = ] 20</math></p> <p>AND</p> <p><b>M2</b> for <math>(\textit{their } x + 2) \times (3 \times \textit{their } x - 4)</math><br/> or<br/> <b>M1</b> for <math>(\textit{their } x + 2)</math> or <math>(3 \times \textit{their } x - 4)</math></p> <p>If <b>0</b> or <b>M1</b> scored, instead allow <b>SC2</b> for answer 200 with no or insufficient working<br/> If <b>0</b> scored, instead allow <b>SC1</b> for <math>x = 8</math> with no or insufficient working</p> | <p>“Correct working” requires evidence of at least <b>M1M1A1</b> or alternate convincing approach</p> <p>FT from an equation with <math>x</math> on both sides only.</p> <p><i>their x</i> must be a positive integer and stated<br/> <i>their x</i> or <i>their</i> length/width may be on the diagram</p> |



| Question |     | Answer  | Marks | Part marks and guidance    |  |
|----------|-----|---|-------|----------------------------|--|
| 22       | (a) | <p>Any two from</p> <p>Small sample oe</p> <p>Limited to one age group oe</p> <p>May all be one gender oe</p> | 2     | B1 for each correct reason | <p>Accept e.g:</p> <p>They should have asked more pupils<br/>Do not accept they should ask all the pupils</p> <p>They should have asked different age groups</p> <p>They should make sure they ask males and females</p> <p>Accept two disadvantages given in one statement</p> <p>Ignore incorrect statements</p> |
| 22       | (b) | <p>The sample is representative of the whole school oe</p>  | 1     |                            | See Appendix 5   |

| Question |     | Answer   | Marks | Part marks and guidance  |  |
|----------|-----|--|-------|--|--|
| 23       | (a) | Accurate ruled perpendicular from T to AB with correct construction arcs   | 2     | <b>B1</b> for accurate ruled perpendicular from T to AB with no/incorrect construction arcs $\pm 2^\circ$  | For 2 marks or B1 must reach/cross AB<br>Correct arcs could be e.g. Kite method<br><br>Condone dashed/dotted lines<br>Multiple lines treat as choice   |
| 23       | (b) | 520 000 to 560 000 with correct working oe<br><br>OR<br><br>that would be 6 cm on the map but it only measures 5.2 to 5.6 cm oe<br><br>OR<br><br>This money would build 3 km but it only measures 2.6 to 2.8 km oe | 3     | <b>B1FT</b> for [road =] 5.2 to 5.6 [cm] or 2.6 to 2.8 [km] or for <i>their</i> (a) measured $\pm 2\text{mm}$<br><br><b>M1FT</b> for ( <i>their</i> 5.2 to 5.6) $\div 2 \times 200\,000$ oe or for $600\,000 \div 200\,000 \times 2$ | For 3 marks accept e.g. it will be 40 000 to 80 000 less than this<br>B1 may be seen on the diagram<br>Accept FT given in km as <i>their</i> (a) $\div 2$<br><br>M1 implied by 6 cm or 3 km<br>Method can be implied by correct figures<br><br>For 3 marks accept e.g. $3 \times 200\,000$ is greater than $2.7 \times 200\,000$ |
| 24       |     | $y = 4x + 5$ final answer  | 4     | <b>B3</b> for final answer $4x + 5$<br><br>OR<br><br><b>B2</b> for gradient = 4 soi<br>or<br><b>M1</b> for $\frac{13-5}{2-0}$ oe<br><br><b>B1</b> for c clearly identified as 5 soi  | B2 implied by $[y =] 4x + c$<br><br>M1 could be a right angled triangle on the diagram and <i>their</i> $\frac{\text{diff in } y}{\text{diff in } x}$<br><br>B1 implied by $[y =] mx + 5$ but not by a graph<br>'y-intercept = 5' scores B1  |

| Question |  | Answer   | Marks | Part marks and guidance  |  |
|----------|--|--|-------|--|--|
| 25       |  | $[m = ] -8$  | 2     | <b>B1</b> for $2^{-1}$<br>or<br><b>M1</b> for $2^{7+m}$ or $7 + m = -1$ oe   |  |
| 26       |  | No with either<br><br>$144 \neq 136$<br>or $108 \neq 100$<br>or $44 \neq 36$ | 4     | <b>B3</b> for 136 and 144<br>OR<br><b>M1</b> for $10^2 + 6^2$ oe<br><b>M1</b> for $12^2$ or 144<br><br><u>Alternative Method 1:</u><br><br><b>B3</b> for 108 and 100<br>OR<br><b>M1</b> for $12^2 - 6^2$ oe<br><b>M1</b> for $10^2$ or 100<br><br><u>Alternative Method 2:</u><br><br><b>B3</b> for 44 and 36<br>OR<br><b>M1</b> for $12^2 - 10^2$ oe<br><b>M1</b> for $6^2$ or 36 | Do not accept scale drawing<br><br>Other acceptable comparisons:<br>$\sqrt{136} \neq 12$ or $12^2 \neq 136$<br>$\sqrt{108} \neq 10$ or $10^2 \neq 108$<br>$\sqrt{44} \neq 6$ or $6^2 \neq 44$<br><br>Note: $10^2 + 6^2 \neq 12^2$ Max M1M1 |

**Appendix 1****Q14a**

Accept reasons that refer to being flat in one month [June or June to July or July] **or** dip in another month [July or July to August or August]. If the month is mentioned then it must be correct - any of the bracketed months

|    |  |   |
|----|--|---|
| 1  | No, the sales remained flat in July  | 1 |
| 2  | No, the sales did not grow/stayed the same in June and July  | 1 |
| 3  | No, the sales dipped in August   | 1 |
| 4  | No, there was a decrease in July   | 1 |
| 5  | No, there were two months where sales did not grow   | 1 |
| 6  | No, sales went down from July to August  | 1 |
| 7  | No, in July there is a dip in the graph  | 1 |
| 8  | No, in June and July the sales were the same   | 1 |
| 9  | Wrong, July the sales dropped  | 1 |
| 10 | No, the sales increased then stopped and decreased then it increased. (Describes shape and does not refer to wrong months) | 1 |
| 11 | No, in August it drops down then goes back up  | 1 |
| 12 | No from June to August the sales dropped (No as part of the statement is incorrect)  | 0 |
| 13 | No, the sales went down at July and only started to rise again middle of August. (Incorrect statement)                     | 0 |

**Appendix 2****Q14b**

|   |   |   |
|---|---|---|
| 1 | No, the scale may not start from 0. (Implies no figures on sales axis)                    | 1 |
| 2 | No, because on the graph no numbers we can't know exactly.                                | 1 |
| 3 | No, on the graph it's doesn't show the % of sales to check if it double.                  | 1 |
| 4 | No, it doesn't show what it is measured at. (Does not mention numbers/figures/values etc) | 0 |
| 5 | No, sales have tripled not doubled. There three times more sales.                         | 0 |
| 6 | No, slightly more than double.  | 0 |
| 7 | No, at the end of the year it is only 3 more squares, it would have to be 4 to be double. | 0 |

**Appendix 3****Q16aii**

|   |   |   |
|---|---|---|
| 1 | No, it goes up in 4's the closest number to that is 400 [or 404]  | 1 |
| 2 | No, if we kept adding 4 it would go 400 then 404.   | 1 |
| 3 | No, $100 \times 4 = 400$ so $101 \times 4 = 404$  | 1 |
| 4 | 4 does not divide into 402 and 4 is the commonality of the sequence   | 1 |
| 5 | the numbers are multiples of 4  | 1 |
| 6 | No, not all even numbers will be in the sequence (not incorrect but not describing why 402 isn't in the sequence) | 0 |
| 7 | No, there will be no 02 in the number (not incorrect but not enough without saying why)                           | 0 |
| 8 | No, it goes up in 4s not 2s.  | 0 |
| 9 | No, the sequence is going up in 4's.  | 0 |

**Appendix 4****Q16bii**

|    |   |   |
|----|---|---|
| 1  | each number is doubled.   | 1 |
| 2  | X2 every time you go up.  | 1 |
| 3  | I multiplied the next term x 2.   | 1 |
| 4  | You double 4.   | 1 |
| 5  | The terms keep adding itself to get the next number.                        | 1 |
| 6  | You add the number by itself to give the next number.                       | 1 |
| 7  | the number that is added on is doubled for the next number                  | 1 |
| 8  | +4 (accompanied with the correct patterns on the sequence oe is acceptable) | 1 |
| 9  | +4 (alone does not score)   | 0 |
| 10 | Half each number.   | 0 |

**Appendix 5****Q22b**

|    |  |   |
|----|--|---|
| 1  | The sample is representative of the whole school (in mark scheme)                              | 1 |
| 2  | The same proportion of pupils will choose sports for the rest of the school                    | 1 |
| 3  | That the 7 [ or 20] students reflect the choices of the rest                                   | 1 |
| 4  | 7/20 of the rest of the school will choose sports  | 1 |
| 5  | The teacher assumes the sample will be proportional for all 500 pupils                         | 1 |
| 6  | For every 20 people [in the school] 7 will choose sport  | 1 |
| 7  | The ratio/fraction/proportion stays the same if more/all people were asked                     | 1 |
| 8  | Every 20 people will give the same response  | 1 |
| 9  | The sample reflects the rest of the school (hints at representative sample)                    | 1 |
| 10 | The whole school has the same interests as year 8 BOD hints at representative sample           | 1 |
| 11 | That 7 out of 20 is accurate (It is accurate as the results for the sample)                    | 0 |
| 12 | Other students in the school will choose the same theme (Not referring to proportion/fraction) | 0 |
| 13 | The same amount will choose sports for the rest of the years (needs proportion not amount)     | 0 |
| 14 | There will be 175 students that prefer a sports theme (Not referring to sample)                | 0 |
| 15 | All of the students will take part / attend /choose an option                                  | 0 |

## 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](https://ocr.org.uk/qualifications/resource-finder)

 [ocr.org.uk](https://ocr.org.uk)

 [Twitter/ocrexams](https://twitter.com/ocrexams)

 [/ocrexams](https://twitter.com/ocrexams)

 [/company/ocr](https://www.linkedin.com/company/ocr)

 [/ocrexams](https://www.youtube.com/ocrexams)



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 2023 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.