OCR
Oxford Cambridge and RSA

Foundation

GCSE

Mathematics - Paper 2

J560/02: Paper 2 (Foundation tier)

General Certificate of Secondary Education

Mark Scheme for June 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.

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
BOD	Benefit of doubt
FT	Follow through
ISW	Ignore subsequent working (after correct answer obtained), provided method has been completed
M0	Method mark awarded 0
M1	Method mark awarded 1

M2	Method mark awarded 2
A1	Accuracy mark awarded 1
B1	Independent mark awarded 1
B2	Independent mark awarded 2
MR	Misread
SC	Special case
^	Omission sign
BP	Blank page
SEEN	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.
- **nfww** 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 × (their '37' + 16), or FT 300 – √(their '52 + 72'). Answers to part questions which are being followed through are indicated by e.g. FT 3 × 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)		25	1		
1	(b)		Any 4 sections indicated	1		Mark clear intention
2	(a)		12	1		
2	(b)		2 + (7 – 3) × 8 = 34	1		Condone additional bracket(s) as long as mathematically correct.
3	(a)		45	2	**M1** for at least two of 24, 12 and 9 or for attempt to sum their three values	May be seen on bar chart their three values MUST be stated
3	(b)		$1\frac{1}{2}$ squares drawn Key: 6	1 1		Mark intention to draw half a square in any orientation. Allow for internal line of picture to be omitted.
4	(a)		2	1		
4	(b)		$\frac{9}{4}$	1		Accept equivalent improper fractions.
4	(c)		$\frac{3}{14}$ **oe**	2	**M1** for $\frac{8}{14}$ or $\frac{8k}{14k} - \frac{5k}{14k}$	e.g $\frac{56}{98} - \frac{35}{98}$ isw attempts to convert after correct answer seen
4	(d)		$\frac{3}{8}$ final answer	2	**M1** for $\frac{30}{80}$ or equivalent fraction or for correct cancelling of 2 and 16 **and** 5 and 15	i.e. $\frac{1}{1} \times \frac{3}{8}$
5	(a)		18	1		

Question			Answer	Marks	Part marks and guidance	
5	(b)		-7	1		
6	(a)		39	2	**B1** for answer 0.39 or **M1** for 134 – 95 or 1.34 - 0.95	For M1 allow embedded calculations, e.g. 95 + 39 =134
6	(b)		0.199 [l], $\frac{1}{5}$ [l], 250 [ml], 0.3 [l]	2	**B1** for 3 values in correct order or for 0.25 and 0.2 or for 200, 300 and 199	For 2 marks accept correct equivalents [with correct units stated] Use "cover up" method
7	(a)		14	2	**M1** for $\frac{700\times2}{100}$ **oe**	Answer 714 implies M1
7	(b)		742	2	**M1** for 700 + 3 × 14 **oe** or for 700 + 3 × their (a) **oe**	FT for 2 marks when their (a) is < 700
8			230	3	**M2** for 200 × $\frac{100+15}{100}$ **oe** or **M1** for 200 × $\frac{15}{100}$ **oe**	M1 implied by 30
9	(a)		70	2	**M1** for [AB=] 6.8 [cm] to 7.2 [cm] or for their written AB in cm × 10	For 2 marks accept answers in the range 68 to 72 AB must be stated. Method may be seen on the diagram.
9	(b)		Town C marked 5.3 to 5.7 cm from B and on a bearing of 328° to 332°	2	**M1** for either length or bearing correct If 0 scored **SC1** for correct point from A	Allow unambiguous indication if a cross is not seen.

Question			Answer	Marks	Part marks and guidance	
10			32	**4**	**M1** for 9 x 30 implied by 270 **M1** for their 270 + 50 Implied by 320 **M1** for their total earnings ÷ 10 (could be implied by their answer)	<u>Alternative Method:</u> M1 for 9 x 30 implied by 270 M1 for 50 ÷ 10 and their 270 ÷ 10 M1 for 27 + 5 see appendix
11			1	**3**	**B1** for $[\sqrt[3]{64} =]\ 4$ **B1** for $[(\frac{1}{2})^2 =]\ \frac{1}{4}$ **oe**	$\frac{4}{4}$ scores B1B1
12	**(a)**		9 3 2 7 9 3 7 2 9 7 3 2 9 7 2 3 9 2 3 7 9 2 7 3	**2**	**B1** for at least 5 out of 6 correct with maximum 1 repeat/extra or for 4 out of 6 correct (no repeats/extras)	If 9 3 2 7 is omitted allow 2 marks for 5 correct or B1 for at least 4 out of 5 correct with maximum 1 repeat/extra or for 3 out of 5 correct (no repeats/extras)
12	**(b)**		$\frac{2}{6}$ **oe**	**1**	**FT** their (a)	Mark to candidate's advantage. Allow for FT either their total written combinations or their combinations including the given combination. Allow 0.33 [3….] or 33.[3….]% Do not accept ratio or words isw attempts to convert to decimals or percentages when acceptable fraction seen

Question			Answer	Marks	Part marks and guidance	
13	(a)		No and 83 **oe** or No and 49 and 46 or No and 25 and 28	4	**M3** for 3 + 6 +10 + 15 + their 21 + their 28 or for their 21 + their 28 and 80 – their 34 or for 80 – (their 21+15+10+6+3) and their 28 or **B2** for 21 and 28 or **B1** for 21 or 28 **OR** **M2** for 80–(their 21+15+10+6+3) or 80–their 34 or **M1** for [80-] 3 + 6 +10 + 15	implied by 83 implied by 49 and 46 implied by 25 and 28 their 21 > 15 and their 28 > their 21 B2 implied by 49 M2 implied by 25 or 46 M1 implied by 34
13	(b)	(i)	10 + 15 and 25	1		
13	(b)	(ii)	10	2	**M1** for recognition of square number pattern If 0 scored **SC1** for answer 11	e.g. $\sqrt{144}$, 11×11, 36, 49, [64, ….]

Question			Answer	Marks	Part marks and guidance	
14	(a)		4 [badges] with correct working	5		'Correct working' requires full evidence of at least **M2M1**
					M3 for 50 – (6 × 3.50 + 2 × 7.50) **oe** or **M2** for 6 × 3.50 + 2 × 7.50 **oe** or **M1** for 6 × 3.50 or 2 × 7.50 **oe**	M3 implied by 14,15,21 seen or 14,36 seen M2 implied by 36 M1 implied by 21 or 15
					AND	
					M1 for their (50 – (6 × 3.50 + 2 × 7.50)) ÷ 2.99 **oe**	Accept their (50 – 6 × 3.50 + 2 × 7.50) ÷ 3 Implied by list 2.99, 5.98, 8.97, 11.96, [14.95, …….] up to one less than their 14 Condone one arithmetic slip. or 3,6,9,12, [15, ……] up to one less than their 14 or Embedded e.g. 4 x 2.99 = 11.96
					If **0** or **1** scored, instead award **SC2** for 4 [badges] with no or insufficient working or If **0** scored **SC1** for 14 with no or insufficient working	
	(b)		2.04	**2**	**M1** for their 14 – their **((a)** × 2.99**)** **oe**	their **((a)** × 2.99**)** could be seen in part (a) and must be < their 14 M1 can be implied by a correct FT answer to their 14 – their **((a)** × 2.99**)**

Question			Answer	Marks	Part marks and guidance	
15			1 hour 28 minutes with correct working	5	**B4** for 88 minutes with correct working **OR** **M1** for $\frac{1}{8}+\frac{1}{4}$ **oe** **A1** for $\frac{3}{8}$ **oe** **AND** **M2** for 55 ÷ their (1 – their $\frac{3}{8}$) **oe** or **M1** for [55 =] 1 – their $\frac{3}{8}$ **oe** If **0** or **1** scored, instead award **SC2** for answer 1 hour 28 minutes with no or insufficient working If **0** scored **SC1** for answer 88 minutes with no or insufficient working	"Correct working" requires evidence of at least **M2** M1A1 may be shown pictorially or $\frac{1}{8}, \frac{2}{8}, \frac{5}{8}$ stated M1A1 implied by $\frac{3}{8}$ or $\frac{5}{8}$ seen oe M2 implied by e.g.11 x 8 or $\frac{440}{5}$ M1 implied by e.g. $\frac{1}{8}$ =11 or $\frac{5}{8}$ <u>Alternative Method:</u> M1 for [Singing=] 11 A1 for [Dancing=] 22 M1A1 implied by 33 AND M2 [Total Time=] 55+22+11 or 55+33 or M1 [Dancing + Singing=] 22+11 oe

Question			Answer	Marks	Part marks and guidance	
16			2 8	**2**	**B1** for each	
17	**(a)**		Vector **a** correctly drawn with direction arrow	**1**		Across (a) and (b), penalise first instance only where direction arrow is omitted or in the incorrect direction
17	**(b)**		Vector **a** + **b** correctly drawn with direction arrow	**2**	**M1** for $\begin{pmatrix}4\\-2\end{pmatrix}$ or for $\begin{pmatrix}3\\2\end{pmatrix}$ + $\begin{pmatrix}1\\-4\end{pmatrix}$ correctly drawn in an incomplete vector triangle with or without arrows	Could be part of a complete vector triangle For 2 or 1 marks allow correct vector drawn when construction/counting lines/arcs are drawn. Condone omission of brackets.
18			81	**4**	**B1** for 135 **AND** **M2** for their (180-45) ÷ (3 + 2) [×k] **oe** (k = 1,2 or 3) or **M1** for x + y = their (180-45) or ECD = 45 or DEC = x or BAC = y	May be seen on diagram e.g. DCB, ECA Implied by 54
19			36π final answer	**3**	**M1** for $\frac{4}{3}\times\pi\times3^3$ **oe** **M1dep** for $\frac{4}{3}\times\pi\times27$ or $4\times\pi\times3^2$ or $\frac{108\pi}{3}$ or $4\times\pi\times9$ or $\pi36$ **oe**	Accept $36\times\pi$ do not accept $\pi36$ for 3 marks For method marks accept π = 3.14[2…..] and 1.33[3…..] for $\frac{4}{3}$

Question			Answer	Marks	Part marks and guidance	
20			Correct explanation $\frac{1}{2}$ omitted from the area of the cross section **oe** 8	1 2	 **M1** for $\frac{1}{2} \times b \times h = 24$ seen, either as a formula or with values	See appendix Do not ignore incorrect statements M1 implied by b × h = 48 or a correct factor pair of 48 or e.g. h(h+2) = 48 oe M1 may be seen in their explanation of the error
21	(a)		Four correctly plotted points	2	**B1** for 2 or 3 correct plots	Use overlay as a guide, ± half small square radially
21	(b)		Positive	1		Do not accept description of relationship Condone embellishments e.g. strong moderate, medium etc
21	(c)		Point at (6, 1.4) indicated only	1		FT their plots from (a), If they have 2 outliers they must indicate both or just (6, 1.4)
21	(d)	(i)	Ruled line of best fit **and** answer **FT** ± 0.01 their straight ruled line at 8 years	2	**B1** for ruled line of best fit or answer **FT** ± 0.01 their straight ruled line with positive gradient	Use overlay for LOBF, ruled line needs to reach both gates set at: (2,0.8) and (2,0.94) (13, 1.54) and (13, 1.66)
21	(d)	(ii)	This child will fit the average pattern and will not be too tall or too short for their age **oe**	1		See appendix Ignore incorrect statements

Question			Answer	Marks	Part marks and guidance	
21	(e)		Only have data on students up to 14 years old **oe**	1		**Accept e.g**. The trend may not continue The line of best fit should not extend beyond the data provided Outside range of data provided oe Small sample **Do not accept e.g.** 17 is not on the graph The graph does not go to 17 (alone) See appendix Ignore incorrect statements
22			7	3	**B1** for sin 30 = $\frac{1}{2}$ **oe** **M1** for sin 30 = $\frac{a}{14}$ or better	Accept any letter or correct identification for a e.g. x or opposite M1 implied by 14 x sin 30 oe <u>Alternative Method</u>: B1 for cos 60 = $\frac{1}{2}$ oe M1 for cos 60 = $\frac{a}{14}$ or better Accept equivalent Sine Rule application
23	(a)		(x + 6)(x + 4) final answer	2	**M1** for (x + a)(x + b) where a + b = 10 or ab = 24 or for x(x + 4) + 6(x + 4) or x(x + 6) + 4(x + 6)	Condone (x + 6)(x + 4) = 0 and (x + 6)(x + 4) = y for 2 marks
23	(b)		–6 and –4	1	**FT** their (a) dep on two brackets	Allow correct solutions if part (a) incorrect

Question			Answer	Marks	Part marks and guidance	
24	(a)		Correct method that would lead to 495, 60 or 8.25 **oe** e.g. (55 ÷ 5) × 45 or 55 × (45 ÷ 5) or 11 × 0.75 **oe** or 540 ÷ (45 ÷ 5)	**M2**	**M1** for 55 ÷ 5 or 11 or 45 ÷ 5 or 0.75 or 60 × 9 **oe** or for repeated addition attempt at method with no more than one error	M2 may be repeated addition, done in stages etc For M2 accept e.g. 11 × 45, 45 × 10 + 45, 9 × 55, 540 ÷ 9, 540 ÷ 45 × 5 M2 implied by 495 or 60 or 8.25 or 8 mins 15 seconds For M2, do not accept incorrect time conversion e.g. 0.45 × 11
			60 [boxes] or 8.25 **oe** or 495 **and** 540	**A2**	**A1** for 495	Accept 8 mins 15 seconds for A2
24	(b)		They continue to pack boxes at the same rate (or faster) **oe**	**1**		Accept any comment that implies the rate does not go slower e.g. They took no breaks They pack for 9 mins without stopping Each box took the same time to pack They don't get tired That they were not interrupted The boxes remain the same size and consistency That they won't make any mistakes I assumed <u>every</u> box took 9 seconds **Do not accept** e.g. I assumed one box took 9 seconds

Question			Answer	Marks	Part marks and guidance	
25			5 and 9 with correct working	6		"Correct working" requires evidence of **M3 AND M1**
					M3 for 72 and 40 or **M2** for 72 or 40 or	
					B1 for p + q = 112 **oe** **B1** for p – q = 32 **oe** or q – p = 32 **oe**	2p = 112 + 32 oe implies B1B1 2q = 112 – 32 oe implies B1B1
					AND	
					M1 for 360 ÷ their p or 360 ÷ their q **oe** or $\frac{180(n-2)}{n}$ = 180 – their p or $\frac{180(n-2)}{n}$ = 180 – their q **oe**	M1 could be repeated addition oe For M1, accept e.g. 360 ÷ 5 = 72 or other convincing justification
					A1 for one correct answer	A1dep on at least M2 and M1 leading to that answer
					If **0** or **1** scored, instead award **SC2** for both answers correct with no or insufficient working If 0 scored award **SC1** for one correct answer with no or insufficient working	

APPENDIX

Percentage Methods:

Labels Only

This is when labels such as 10% = are used

If ONLY labels are used, the final answer scores full marks if it correct.
If there is an error in the values and therefore the final answer is incorrect this cannot score method marks

e.g. Find 2% of 700 .
10% = 70
5% = 35
1% = 3.5 ✖
2% = 7 ✖

Error in the method without operations seen scores M0, if we saw the appropriate operations at each stage e.g. ÷ 10, we could score method mark(s).

Question 10:
Additional Method:

M1 for 50 - 30x[10-9] (they are using the difference of £1)
M1 for 20/10 (Difference divided by Ling's rate of pay)
M1 for 30+2

Exemplar responses for Q20

	Response	Mark
1	Has found [the volume of] a cuboid	**1**
2	He needs to halve the volume of a cuboid (BOD referring to the calculation rather than 240)	**1**
3	They forgot to ÷2 to work out the area of the front face	**1**
4	He did not divide the [area of the] cross section by 2	**1**
5	She did not do half base times height	**1**
6	The area of the cross section is ½ b × h	**1**
7	The area of the triangle needs to be halved	**1**
8	It has the cross section of a triangle so it needs to be divided by 2 (referring to cross section)	**1**
9	That the student has to divide h × b by 2	**1**
10	It's a triangle, they didn't half 24 after they did 4 × 6	**1**
11	So it would be 6 × 4 / 2=12	**1**
12	6 × 4 / 2 × 10 =120 (BOD describes that triangle should be divided by 2)	**1**
13	He forgot to half the 10 (incorrect – needs to refer to triangle area)	**0**
14	They didn't find the area of the triangle before ×10 (not sufficient does not describe the error)	**0**
15	The student did not work out that it is a triangle (similar to above)	**0**
16	Calculated a cube instead of a triangle (incorrect)	**0**
17	He did not halve it (not referring to what the 'it' is)	**0**
18	They did not multiply the volume by 2 (the volume is given as 240)	**0**
19	He did not divide the volume by 2	**0**
20	Wrong formula	**0**
21	They did not halve the answer (not specific to the cross section)	**0**
22	They needed to divide by 2 (not specific to cross section)	**0**

Exemplar responses for Q21dii

	Response	Mark
1	Kai has average height	**1**
2	Kai fits in with everyone else (and is not like a child age 6)	**1**
3	All children are similar/same height[s] at that age	**1**
4	Kai fits the trend	**1**
5	His height fits the line of best fit	**1**
6	That he is not too small/too tall (accept assumptions that imply that the growth is performing as expected for the average)	**1**
7	He follows the pattern. He could be tall or short for his age (accept the first part ignore incorrect statement)	**1**
8	That he has not had any growth problems (accept assumptions that imply that the growth has not been different to normal for some reason) (reason must be given)	**1**
9	The sample of children is representative oe	**1**
10	Kai is the same height as another 8 year old	**0**
11	Kai grows according to the line on the graph	**0**
12	Kai is shorter than expected for their age (incorrect – should be Kai is **not** shorter …..)	**0**
13	Assumption: the older you get, the taller you will grow	**0**
14	He will be in the middle of a 7 and 9 yr old	**0**
15	Kai is exactly 8 years old (needs more)	**0**
16	My line of best fit is accurate	**0**
17	Between 7 and 8 there is not much growth	**0**
18	Children age as they grow	

Exemplar responses for Q21e

Reason must refer to or imply no data above 14 and not just refer to the graph not going above 14 alone.
Accept children, plots/points as implying data.

	Response	Mark
1	It is extrapolated and not in the data provided	**1**
2	The diagram has no ages/data above 14 (underlined part gets the mark)	**1**
3	Insufficient data (small sample reference)	**1**
4	The graph does not go up to 17 as there is no data above 14 (underlined part gets the mark)	**1**
5	We do not know that the pattern of growth will continue above 14 (implies trend may not continue)	**1**
6	The graph does not cover that data range (allow for the underlined part)	**1**
7	There are no children on the graph above 14 (accept children for data)	**1**
8	There are no plots/points on the graph above 14 (accept plots/points for data)	**1**
9	Medical deficiencies (not sufficient to describe trend may not continue)	**0**
10	Doesn't have a growth disorder (not sufficient to describe trend may not continue)	**0**
11	Grows normally (not sufficient to describe trend may not continue)	**0**
12	The graph reaches up to 14 (not referring to data)	**0**
13	Extrapolated (needs explanation)	**0**
14	As you may stop growing by 17 (not sufficient to describe trend may not continue)	**0**
15	The graph only goes up to 14 (not referring to data)	**0**
16	The graph does not show information for 17 year olds	**0**
17	By 17 they won't be growing at the same rate (not referring to data)	**0**
18	Because it goes beyond the value on the axes	**0**
19	Because they could grow more or stop growing	**0**
20	There is no data	**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

ocr.org.uk

Twitter/ocrexams

/ocrexams

/company/ocr

/ocrexams

CAMBRIDGE
UNIVERSITY PRESS & ASSESSMENT

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

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.