Level 3 Certificate

Mathematics

H868/02: Critical Maths

OCR Level 3 Certificate Core Maths A (MEI)

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.

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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 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 posted on the RM Cambridge Assessment Support Portal http://www.rm.com/support/ca

3. Log-in to RM Assessor and mark the **required number** of practice responses ("scripts") and the **number of required** standardisation responses.

   YOU MUST MARK 10 PRACTICE AND 10 STANDARDISATION RESPONSES BEFORE YOU CAN BE APPROVED TO MARK LIVE SCRIPTS.

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% (traditional 40% Batch 1 and 100% Batch 2) 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 by telephone or the RM Assessor messaging system, or by email.

5. **Crossed Out Responses**
   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 may give candidates the benefit of the doubt and mark the crossed out response where legible.

   Rubric Error Responses – Optional Questions
   Where candidates have a choice of question across a whole paper or a whole section and have provided more answers than required, then all responses are marked and the highest mark allowable within the rubric is given. Enter a mark for each question answered into RM assessor, which will select the

highest mark from those awarded. *(The underlying assumption is that the candidate has penalised themselves by attempting more questions than necessary in the time allowed.)*

Multiple Choice Question Responses
When a multiple choice question has only a single, correct response and a candidate provides two responses (even if one of these responses is correct), then no mark should be awarded (as it is not possible to determine which was the first response selected by the candidate).
When a question requires candidates to select more than one option/multiple options, then local marking arrangements need to ensure consistency of approach.

Contradictory Responses
When a candidate provides contradictory responses, then no mark should be awarded, even if one of the answers is correct.

Short Answer Questions (requiring only a list by way of a response, usually worth only **one mark per response**)
Where candidates are required to provide a set number of short answer responses then only the set number of responses should be marked. The response space should be marked from left to right on each line and then line by line until the required number of responses have been considered. The remaining responses should not then be marked. Examiners will have to apply judgement as to whether a 'second response' on a line is a development of the 'first response', rather than a separate, discrete response. *(The underlying assumption is that the candidate is attempting to hedge their bets and therefore getting undue benefit rather than engaging with the question and giving the most relevant/correct responses.)*

Short Answer Questions (requiring a more developed response, worth **two or more marks**)
If the candidates are required to provide a description of, say, three items or factors and four items or factors are provided, then mark on a similar basis – that is downwards (as it is unlikely in this situation that a candidate will provide more than one response in each section of the response space.)

Longer Answer Questions (requiring a developed response)
Where candidates have provided two (or more) responses to a medium or high tariff question which only required a single (developed) response and not crossed out the first response, then only the first response should be marked. Examiners will need to apply professional judgement as to whether the second (or a subsequent) response is a 'new start' or simply a poorly expressed continuation of the first response.

6. Always check the pages (and additional objects if present) at the end of the response in case any answers have been continued there. If the candidate has continued an answer there, then add a tick to confirm that the work has been seen.

7. Award No Response (NR) if:
    - there is nothing written in the answer space

Award 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.

8. The RM Assessor **comments box** is used by 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 phone, the RM Assessor messaging system, or e-mail.

9. Assistant Examiners will send a brief report on the performance of candidates to their Team Leader (Supervisor) via email by the end of the marking period. The report should contain notes on particular strengths displayed as well as common errors or weaknesses. Constructive criticism of the question paper/mark scheme is also appreciated.

10. For answers marked by levels of response:
    a. **To determine the level** – start at the highest level and work down until you reach the level that matches the answer
    b. **To determine the mark within the level**, consider the following

Descriptor	Award mark
On the borderline of this level and the one below	At bottom of level
Just enough achievement on balance for this level	Above bottom and either below middle or at middle of level (depending on number of marks available)
Meets the criteria but with some slight inconsistency	Above middle and either below top of level or at middle of level (depending on number of marks available)
Consistently meets the criteria for this level	At top of level

11. **Annotations**

Annotation	Meaning
✓and ✗	
BOD	Benefit of doubt
FT	Follow through
ISW	Ignore subsequent working
M0, M1	Method mark awarded 0, 1
A0, A1	Accuracy mark awarded 0, 1
B0, B1	Independent mark awarded 0, 1
SC	Special case
^	Omission sign
MR	Misread
Highlighting	

Other abbreviations in mark scheme	Meaning
E1	Mark for explaining
U1	Mark for correct units
G1	Mark for a correct feature on a graph
M1 dep*	Method mark dependent on a previous mark, indicated by *
cao	Correct answer only
oe	Or equivalent
rot	Rounded or truncated
soi	Seen or implied
www	Without wrong working

12. **Subject Specific Marking Instructions**

a. Annotations must be used during your marking. 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.

Award NR (No Response)
- if there is nothing written at all in the answer space and no attempt elsewhere in the script
- 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, a picture) which isn't an attempt at the question.

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

If a candidate uses the answer space for one question to answer another, for example using the space for 8(b) to answer 8(a), then give benefit of doubt unless it is ambiguous for which part it is intended.

b. An element of professional judgement is required in the marking of any written paper. Remember that the mark scheme is designed to assist in marking incorrect solutions. Correct solutions leading to correct answers are awarded full marks but work must not always be judged on the answer alone, and answers that are given in the question, especially, must be validly obtained; key steps in the working must always be looked at and anything unfamiliar must be investigated thoroughly. Correct but unfamiliar or unexpected methods are often signalled by a correct result following an apparently incorrect method. Such work must be carefully assessed. When a candidate adopts a method which does not correspond to the mark scheme, escalate the question to your Team Leader who will decide on a course of action with the Principal Examiner.

If you are in any doubt whatsoever you should contact your Team Leader.

c. The following types of marks are available.

M

A suitable method has been selected and applied in a manner which shows that the method is essentially understood. Method marks are not usually lost for numerical errors, algebraic slips or errors in units. However, it is not usually sufficient for a candidate just to indicate an intention of using

some method or just to quote a formula; the formula or idea must be applied to the specific problem in hand, e.g. by substituting the relevant quantities into the formula. In some cases the nature of the errors allowed for the award of an M mark may be specified.
A method mark may usually be implied by a correct answer unless the question includes the DR statement, the command words “Determine” or “Show that”, or some other indication that the method must be given explicitly.

A
Accuracy mark, awarded for a correct answer or intermediate step correctly obtained. Accuracy marks cannot be given unless the associated Method mark is earned (or implied). Therefore M0 A1 cannot ever be awarded.

B
Mark for a correct result or statement independent of Method marks.

Unless otherwise indicated, marks once gained cannot subsequently be lost, e.g. wrong working following a correct form of answer is ignored. Sometimes this is reinforced in the mark scheme by the abbreviation isw. However, this would not apply to a case where a candidate passes through the correct answer as part of a wrong argument.

d. When a part of a question has two or more ‘method’ steps, the M marks are in principle independent unless the scheme specifically says otherwise; and similarly where there are several B marks allocated. (The notation ‘dep*’ is used to indicate that a particular mark is dependent on an earlier, asterisked, mark in the scheme.) Of course, in practice it may happen that when a candidate has once gone wrong in a part of a question, the work from there on is worthless so that no more marks can sensibly be given. On the other hand, when two or more steps are successfully run together by the candidate, the earlier marks are implied and full credit must be given.

e. The abbreviation FT implies that the A or B mark indicated is allowed for work correctly following on from previously incorrect results. Otherwise, A and B marks are given for correct work only – differences in notation are of course permitted. A (accuracy) marks are not given for answers obtained from incorrect working. When A or B marks are awarded for work at an intermediate stage of a solution, there may be various alternatives that are equally acceptable. In such cases, what is acceptable will be detailed in the mark scheme. If this is not the case please, escalate the question to your Team Leader who will decide on a course of action with the Principal Examiner.

Sometimes the answer to one part of a question is used in a later part of the same question. In this case, A marks will often be ‘follow through’. In such cases you must ensure that you refer back to the answer of the previous part question even if this is not shown within the image zone. You may find it easier to mark follow through questions candidate-by-candidate rather than question-by-question.

f. We are usually quite flexible about the accuracy to which the final answer is expressed; over-specification is usually only penalised where the scheme explicitly says so.
   - When a value is given in the paper only accept an answer correct to at least as many significant figures as the given value.
   - When a value is not given in the paper accept any answer that agrees with the correct value to 3 s.f. unless a different level of accuracy has been asked for in the question, or the mark scheme specifies an acceptable range.
     NB for Specification B (MEI) the rubric is not specific about the level of accuracy required, so this statement reads "2 s.f".

   Follow through should be used so that only one mark in any question is lost for each distinct accuracy error.
   Candidates using a value of 9.80, 9.81 or 10 for g should usually be penalised for any final accuracy marks which do not agree to the value found with 9.8 which is given in the rubric.

g. Rules for replaced work and multiple attempts:
   - If one attempt is clearly indicated as the one to mark, or only one is left uncrossed out, then mark that attempt and ignore the others.
   - If more than one attempt is left not crossed out, then mark the last attempt unless it only repeats part of the first attempt or is substantially less complete.
   - if a candidate crosses out all of their attempts, the assessor should attempt to mark the crossed out answer(s) as above and award marks appropriately.

h. For a genuine misreading (of numbers or symbols) which is such that the object and the difficulty of the question remain unaltered, mark according to the scheme but following through from the candidate's data. A penalty is then applied; 1 mark is generally appropriate, though this may differ for some units. This is achieved by withholding one A or B mark in the question. Marks designated as cao may be awarded as long as there are no other errors.
   If a candidate corrects the misread in a later part, do not continue to follow through. Note that a miscopy of the candidate's own working is not a misread but an accuracy error.

i. If a calculator is used, some answers may be obtained with little or no working visible. Allow full marks for correct answers, provided that there is nothing in the wording of the question specifying that analytical methods are required such as the bold "In this question you must show detailed reasoning", or the command words "Show" or "Determine". Where an answer is wrong but there is some evidence of method, allow appropriate method marks. Wrong answers with no supporting method score zero. If in doubt, consult your Team Leader.

j. If in any case the scheme operates with considerable unfairness consult your Team Leader.

	Question		Answer	Marks	Guidance	AO
1	(a)		**F** **F** **T** **F**	**B2**	B2 for all correct **B1B0** for 2 correct	**AO3** **AO3**
				[2]		
1	(b)		The scale makes it look as if inflation is zero, but it might be above zero	**B1**	Oe eg The (vertical) scale is too large eg There might be some very small changes that we can't see eg The y (axis scale) goes up in large amounts eg The line is just above the axis, so there could be some changes	**AO3**
				[1]		

	Question		Answer	Marks	Guidance	AO
1	(c)		Doubling every month means the monthly multiplier is 2	M1	soi by any doubling once OR 1200% yearly → annual multiplier 13	AO2
			Repeated doubling for at least 4 months	M1	eg choosing a price/amount and repeatedly doubling OR monthly multiplier is $\sqrt[12]{13}$ $(= 1.238)$	AO2
			Doubling correctly for at least 4 months oe	A1	eg Starting with 100: 200, 400, 800, 1600 (£ or %) Sight of multiplier $\times 2^4$ or a higher power of 2 implies M1M1A1 eg $2^{12} = 4096$ eg $2^{11} = 2048$ OR Multiplier is 1.24	AO3
			eg Doubling every month would be more than 1200% a year, so the journalist is wrong oe	B1	Clear conclusion following M2 and justified by their working OR 1.24 → 24 % increase a month, which is not the same as doubling, so the journalist is wrong **SC B2** If no marks scored: State (or imply) journalist's 1200% is $100\% \times 12$, choose a starting amount and add the same amount repeatedly 11 times (1200%) or 12 (1300%) times. Confirm this is not the same as doubling from one month to the next.	AO3
				[4]		
1	(d)	(i)	0.7 (%)	B1		AO1
				[1]		
1	(d)	(ii)	$\frac{2.9-2.2}{2.9}$	M1	Using *their* value from 1di OR $1 - \frac{2.2}{2.9}$ OR $1 - 0.7586$ Implied by sight of 0.241(379..) or 24.1(379..)	AO1
			24.1(%) **CAO**	A1	1dp required	AO1
				[2]		

Question	Answer	Marks	Guidance	AO
2	Add additional lines dividing up hexagon	M1	Accept workings on additional page 18 Any number of additional lines as long as it could be useful, eg one large equilateral triangle Note: Setting a side length does not score until it is used appropriately	AO2
	Divide hexagon into congruent shapes eg large or small equilateral triangles or large or small rhombuses oe	M1	Division of whole hexagon can be implied by subsequent workings when comparing areas Note: First 2 marks can be awarded for appropriate area calculation for a rhombus or triangle	AO2
	State in words or with clear labelling that one hexagon is 6 large equilateral triangles oe OR Appropriate area calculations for hexagon using their unit	M1	eg State in words or with clear labelling that one hexagon is 3 large rhombuses or 24 small triangles	AO2
	Clearly link the area of one hexagon to the area of the grey rhombus using their congruent shapes eg State in words or with clear labelling that the grey rhombus is half a large equilateral triangle oe OR Appropriate area calculations for rhombus in units which allow comparison with hexagon	M1	eg State in words or with clear labelling that the large rhombus is 4 small rhombuses eg State in words or with clear labelling that the grey rhombus is 2 small equilateral triangles Note: correctly tiling the hexagon with 12 rhombuses or 24 equilateral triangles, and then stating in words or clearly labelling it as 12 or 24 congruent shapes implies M4.	AO2
	One hexagon is 12 times the area of the grey rhombus	A1	Answer must be supported by appropriate workings. If areas have been calculated and used, they must be fully correct	AO3
		[5]		

<table>
<tr><th></th><th colspan="2">Question</th><th>Answer</th><th>Marks</th><th>Guidance</th><th>AO</th></tr>
<tr><td>3</td><td>(a)</td><td></td><td>
<table>
<tr><td>Number of coins</td><td>Fake</td><td>Genuine</td><td>Total</td></tr>
<tr><td>Accepted</td><td>1</td><td>19 404</td><td>19 405</td></tr>
<tr><td>Rejected</td><td>199</td><td>396</td><td>595</td></tr>
<tr><td>Total</td><td>200</td><td>19 800</td><td>20 000</td></tr>
</table>
</td><td>B1
B1FT
B1FT
B1FT</td><td>Correct totals in bottom row
Fake column correct
FT: 0.5% & 99.5% of their fake total
Genuine column correct
FT: 98% & 2% of their genuine total
Right hand totals correct
FT their table provided these two totals add to 20,000</td><td>AO1
AO2
AO2
AO1</td></tr>
<tr><td></td><td></td><td></td><td></td><td>[4]</td><td></td><td></td></tr>
<tr><td>3</td><td>(b)</td><td></td><td>$\frac{199}{595}$
33.4 (%)</td><td>M1
A1FT</td><td>Using the appropriate numbers from their table
Final answer as percentage, any correct rounding but at least 2sf eg 33 (%) 33.45 (%) 33.445 (%)
Note: 33.5 (%) scores A0</td><td>AO1
AO3</td></tr>
<tr><td></td><td></td><td></td><td></td><td>[2]</td><td></td><td></td></tr>
<tr><td>3</td><td>(c)</td><td></td><td>No, don’t make the change because ..
.. the machine already accepts very few fake coins
.. the machine already rejects a lot of genuine coins</td><td>B1</td><td>Oe
B0 for just repeating the question: “No, as this would increase the chance of genuine coins being rejected”</td><td>AO3</td></tr>
<tr><td></td><td></td><td></td><td></td><td>[1]</td><td></td><td></td></tr>
</table>

<table>
<tr><th colspan="3">Question</th><th>Answer</th><th>Marks</th><th>Guidance</th><th>AO</th></tr>
<tr><td>4</td><td>(a)(i)</td><td></td><td><table><tr><th>Couple</th><th>Median</th></tr><tr><td>Amaya and Alex</td><td>6</td></tr><tr><td>Beth and Ben</td><td>8</td></tr><tr><td>Casey and Charlie</td><td>8</td></tr><tr><td>Darcie and Dev</td><td>7</td></tr><tr><td>Finley and Felix</td><td>7</td></tr><tr><td>Heidi and Henry</td><td>7</td></tr></table></td><td>B2</td><td>B2 for all medians correct
B1 B0 for at least 3 medians correct</td><td>AO1
AO1</td></tr>
<tr><td></td><td></td><td></td><td></td><td>[2]</td><td></td><td></td></tr>
<tr><td>4</td><td>(a)(ii)</td><td></td><td>Beth and Ben AND Casey and Charlie</td><td>B1</td><td>If wrong, then B1FT their medians</td><td>AO3</td></tr>
<tr><td></td><td></td><td></td><td></td><td>[1]</td><td></td><td></td></tr>
<tr><td>4</td><td>(a)(iii)</td><td></td><td>A clear problem with the method eg:
• There could be more than one couple in first place
• Doesn’t consider the range (or consistency) of scores
• The median doesn’t always represent individual scores very well</td><td>B1</td><td>Oe
Allow: It ignores high scores
Allow: It ignores low scores

B0 for a wrong reason or one that cannot be justified:
eg Median is not an average
eg Median will always give a tie
eg Median only uses the score from one judge</td><td>AO3</td></tr>
<tr><td></td><td></td><td></td><td></td><td>[1]</td><td></td><td></td></tr>
</table>

<table>
<tr><th></th><th colspan="2">Question</th><th>Answer</th><th>Marks</th><th>Guidance</th><th>AO</th></tr>
<tr><td>4</td><td colspan="2">(b)(i)</td><td>Rule clearly stated eg
• Find the total (of the judges' scores)
• Find the mean (of the judges' scores)
• Ignore highest and lowest (scores) and total the other three scores</td><td>B1</td><td>It must be possible to work out a single score for each couple from the stated rule

B0: mode
B0: use the average</td><td>AO2</td></tr>
<tr><td></td><td colspan="2"></td><td></td><td>[1]</td><td></td><td></td></tr>
<tr><td>4</td><td colspan="2">(b)(ii)</td><td>Table filled in for their rule eg
<table>
<tr><th>Couple</th><th>Total</th><th>Mean</th><th>Total of middle 3</th></tr>
<tr><td>Amaya and Alex</td><td>30</td><td>6</td><td>18</td></tr>
<tr><td>Beth and Ben</td><td>41</td><td>8.2</td><td>25</td></tr>
<tr><td>Casey and Charlie</td><td>39</td><td>7.8</td><td>23</td></tr>
<tr><td>Darcie and Dev</td><td>34</td><td>6.8</td><td>20</td></tr>
<tr><td>Finley and Felix</td><td>32</td><td>6.4</td><td>20</td></tr>
<tr><td>Heidi and Henry</td><td>31</td><td>6.2</td><td>19</td></tr>
</table></td><td>B3</td><td>B3 for all scores correct
B2 for 4 or 5 scores correct
B1 for 2 or 3 scores correct

Allow calculation of the mean here, if "average" was stated in 4bi

B0: for answers using the mode</td><td>AO1
AO1
AO1</td></tr>
<tr><td></td><td colspan="2"></td><td></td><td>[3]</td><td></td><td></td></tr>
<tr><td>4</td><td colspan="2">(b)(iii)</td><td>Winning couple(s) identified</td><td>B1FT</td><td>FT their table of scores from 4bii
B0 if their table is just the medians repeated</td><td>AO3</td></tr>
<tr><td></td><td colspan="2"></td><td></td><td>[1]</td><td></td><td></td></tr>
</table>

Question			Answer	Marks	Guidance	AO
5	(a)		Randomised	B1		AO1
				[1]		
5	(b)		Neither the participants nor those conducting the trial know who is in which group	B1	Or equivalent wording	AO3
				[1]		
5	(c)	(i)	72	B1		AO2
				[1]		
5	(c)	(ii)	$\frac{\sqrt{144}}{2}$	M1	Oe eg $\sqrt{\frac{72}{2}}$ Note: $\sqrt{\frac{144}{2}}$ is M0	AO2
			6	A1	6 www scores M1A1	AO1
				[2]		
5	(d)		Less than 2 standard deviations from the mean soi OR $\frac{81-72}{6}=1.5$ soi	M1	Uses mean of 72 and *their* sd, to determine the number of sd from the mean. Accept a clearly labelled sketch. OR calculate *their* Z score	AO2
			This is not an unusual result, so insufficient evidence to claim that the new medication makes a difference OR The researcher's hypothesis is correct, there is no evidence of a difference when taking the medication	A1	**A1FT** for appropriate conclusion from correct work using the mean and *their* sd Allow: "no evidence"	AO3
				[2]		

Question			Answer	Marks	Guidance	AO
6			Assumption of book width (1cm to 3cm) → Bookcase contains books: 90 – 270	 **B2**	If not B2, then **B1** for bookcase contains 54-89 books. May be soi from total word count for the bookshelf. **SCB1**: Consideration of **only** one shelf with 30-90 books. This also scores A0.	**AO1** **AO2**
			EITHER: Speed of reading words method			
			Reading speed 1 to 5 words a second	**B1**		**AO2**
			100 000 ÷ reading speed → number of **hours** to read a typical book	 **M1**	Calculates time in hours to read a book using their reading speed. May be implied by later work. Note: Time taken to read at a speed of 1 to 5 seconds is approx in range 5 to 30 hours for one book.	**AO2**
			OR: Speed of reading pages method			
			Time to read a page 1min – 5min	**B1**		**AO2**
			100 000 ÷ words per page → × time to read a page → number of **hours** to read a typical book	 **M1**	Calculates time in hours to read a book using their words per page and time to read page. May be implied by later work. Note: Time taken to read at 1min-5min for 200-400 pages is approx in range 3 to 33 hours for one book.	**AO2**
					SCB1M0: If the 100 000 words information is not used to calculate time to read a book, and the time stated is in the range 3 to 33 hours for one book.	
			Clearly stated assumption about the amount of time per day or week devoted to reading	**B1**	Allow assumption that the person reads non-stop, but only if stated very clearly as a specific assumption.	**AO2**
			Total time in line with their assumptions and correct working	**A1**	Accept any units from hours upwards Approximating allowed when working out times Must be no obvious error in their calculations	**2**
				[6]		

Question			Answer	Marks	Guidance	AO
7	(a)		2003	B1		AO3
			2004	B1		AO3
				[2]		
7	(b)		1957	B1		AO2
			to 1964	B1	May list all years from 1957 to 1964	AO3
				[2]		
7	(c)		5	B1		AO3
			42	B1		AO2
				[2]		
7	(d)		Example reasons: • Data are percentages of age groups not of the same whole • Would be harder to compare in a pie chart • Cannot show sub-categories on a pie chart • Pie chart could only compare one group at a time	B1B1	**B1** for each **distinct** correct reason Allow: It's harder to read values/small differences (or %) from a pie chart B0: The age groups may be different sizes (because this is given in the insert) B0 for suggestions to use more than one pie-chart	AO3
				[2]		

Question			Answer	Marks	Guidance	AO
8	(a)	(i)	300 ÷ 0.8 oe	M1	£375 OR 300 × 1.25 OR 300 × 0.25 Implied by correct answer	AO1
			£75	A1		AO1
				[2]		
8	(a)	(ii)	300 ÷ 0.81	M1	£370.37	AO3
			£70.37	A1		AO1
				[2]		
8	(a)	(iii)	£4.63	B1	If not correct, then their (i) - (ii) is **B1FT**	AO3
				[1]		
8	(b)				For £80 donation the gift aid is £20	
			The donations are 4 times the gift aid eg 4 × 1.34 oe	M1	Implied by sight of 5.36 (billion pounds)	AO2
			$\frac{5\,360\,000\,000}{32\,200\,000}$ or $\frac{5.36\times10^9}{32.2\times10^6}$	M1	Appropriate division using the donations as 4 × 1.34 oe Oe eg $\frac{5360}{32.2}$ or $\frac{5.36}{32.2}$	AO2
			£166.46	A1	Could be rounded to nearest pound or penny	AO2
				[3]		

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