Oxford Cambridge and RSA

Level 3 Certificate in Core Maths B (MEI)

H869/01 Introduction to Quantitative Reasoning
Sample Question Paper

Date – Morning/Afternoon Version 1.1
Time allowed: 2 hours

You must have:
- The Insert

You may use:
- A scientific or graphical calculator

* 0 0 0 0 0 0 *

First name										
Last name										
Centre number						Candidate number				

INSTRUCTIONS
- Use black ink. You may use an HB pencil for graphs and diagrams.
- Complete the boxes above with your name, centre number and candidate number.
- Answer **all** the questions.
- Write your answer to each question in the space provided.
- Additional paper may be used if required but you must clearly show your candidate number, centre number and question number(s).
- Do **not** write in the bar codes.
- You are advised that an answer may receive **no marks** unless you show sufficient detail of the working to indicate that a correct method is being used.

INFORMATION
- The total mark for this paper is **72**.
- The marks for each question are shown in brackets **[ ]**.
- This document consists of **20** pages.
- Final answers should be given to a degree of accuracy appropriate to the context.

1 The following information is displayed at a bank in England.

Travel Bank		
Currency	**Sell at**	**Buy at**
AUSTRALIAN DOLLAR	1.48	1.64
CANADIAN DOLLAR	1.54	1.76
EURO	1.14	1.31
TURKISH LIRA	2.55	3.08
US DOLLAR	1.52	1.73

a) How much will 200 Euros cost a customer in pounds? **[3]**

1(a)	

Dave is in a shop in the USA. He sees a watch priced in US dollars at $58.50. Dave wants to know roughly what the watch would cost in pounds. He remembers the exchange rates from Travel Bank.

b) Show how, **without using a calculator**, Dave can estimate the cost of the watch in pounds.

[3]

1 (b)	

2 This question is about estimating the average speed of the earth as it travels round the sun.

The earth travels round the sun once a year.
The average distance of the earth from the sun is 1.5×10^{11} m.

Assume that the sun remains still and ignore the rotation of the earth about its axis.

What assumption must be made about the path of the earth to allow you to estimate its average speed?
Carry out the estimate, giving your answer in km h^{-1}. **[6]**

2

3 Alia takes a job as a home care worker. She travels to elderly people's homes to provide care for them. She is with a client for either 15 minutes or half an hour. This is the blog of her first day at work.

7am set off to see first client.
Journey takes half an hour.
With first client for 15 minutes, then half an hour journey to see second client for 15 minutes.
Arrive home at noon having seen a total of 6 clients; two for 15 minutes each and 4 for half an hour each.

5pm set off for evening visits.
Takes 20 minutes to get to first client.
See total of 4 clients for 15 minutes each and get home at 7 pm.

a) Alia is paid £7.30 an hour but she is only paid for the time she is with clients. She is not paid for travelling time. How much is she paid for her first day? **[2]**

3(a)	

b) Another agency pays home care workers for time with clients and time travelling between clients but not for time travelling to or from home. That agency pays £6.31 an hour.

i) Which of the following is the most reasonable estimate of Alia's total time travelling to and from home on her first day?

30 minutes	50 minutes
1 hour 40 minutes	$3\frac{1}{2}$ hours

[1]

ii) How much would Alia have been paid by the second agency for the day she describes in her blog? **[3]**

3(b)(i)	
3(b)(ii)	

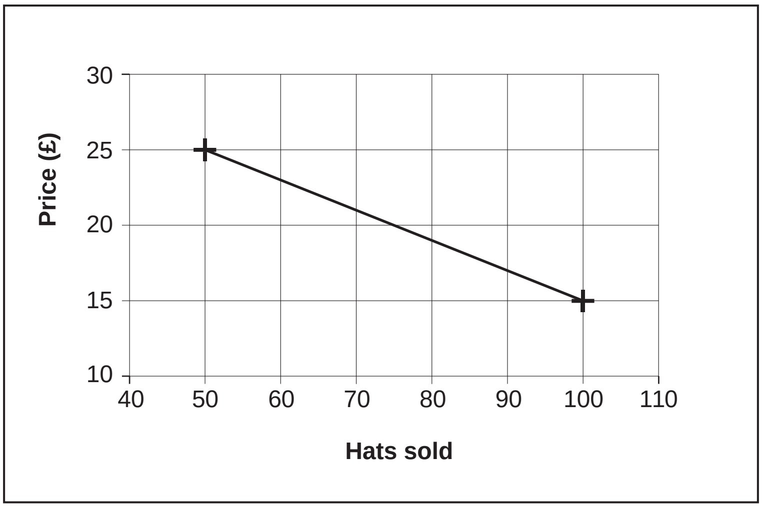
4 Geraldine is setting up a business making hats. She needs to decide how much to sell the hats for.

- Each hat costs her £3 to make.
- She can make up to 100 hats per week.

Geraldine has done market research which suggests the following.

- She can sell 100 hats per week if she charges £15 for each hat.
- She can only sell 50 hats per week if she charges £25 for each hat.

The graph below shows the demand curve modelled as a straight line.



She uses this model and a spreadsheet to work out how to make the maximum profit.

a) Fill in the rest of the numbers in column B. **[2]**

b) What formula should Geraldine type in cell C2 so that she can copy it down the column to give the cost? **[2]**

c) What formula should Geraldine type in cell D2 so that she can copy it down the column to give the profit? **[2]**

d) Geraldine wants to sell each hat for a whole number of pounds.
What price should she sell the hats for to make the maximum profit? **[4]**

4 (a)

	A	B	C	D
1	Price (£)	Hats sold	Cost (£)	Profit (£)
2	15	100	300	1200
3	16			
4	17			
5	18			
6	19			
7	20			
8	21			
9	22			
10	23			
11	24			
12	25	50		

4 (b)

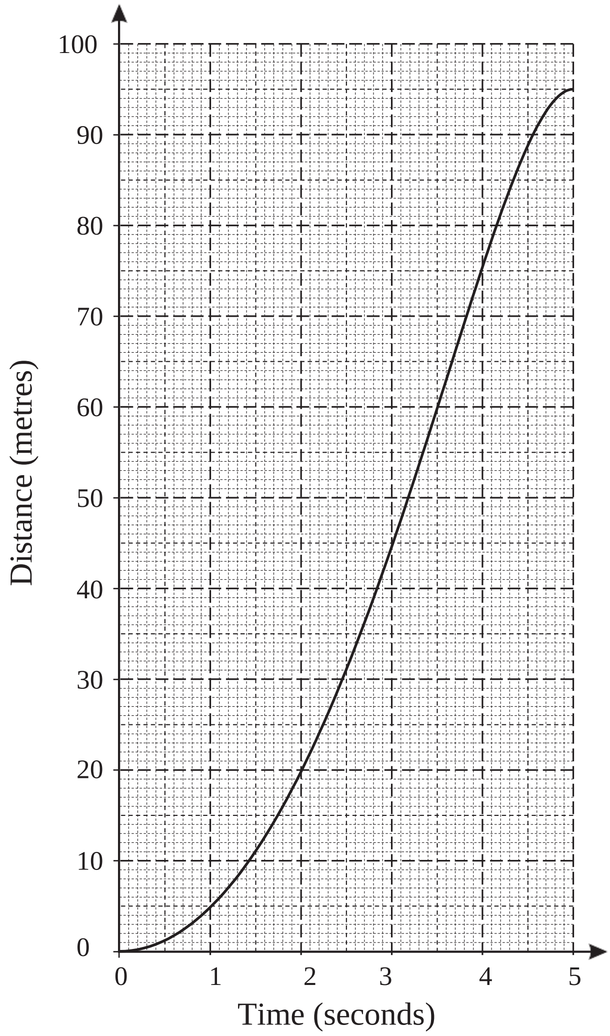
4 (c)

4 (d)

5 A biology student is researching how fast a cheetah can run.

a) On one website, he finds the following graph of a cheetah's motion.

Use the graph to estimate this cheetah's maximum speed.



[4]

5(a)	

b) The student looks at two other websites.

- One website says that the maximum speed of a cheetah is 50 metres per second.
- Another website says that the maximum speed of a cheetah is 70 miles per hour.

Work out whether these two speeds are approximately the same.

[You may use the fact that 5 miles is about the same as 8 km.] **[4]**

5 (b)	

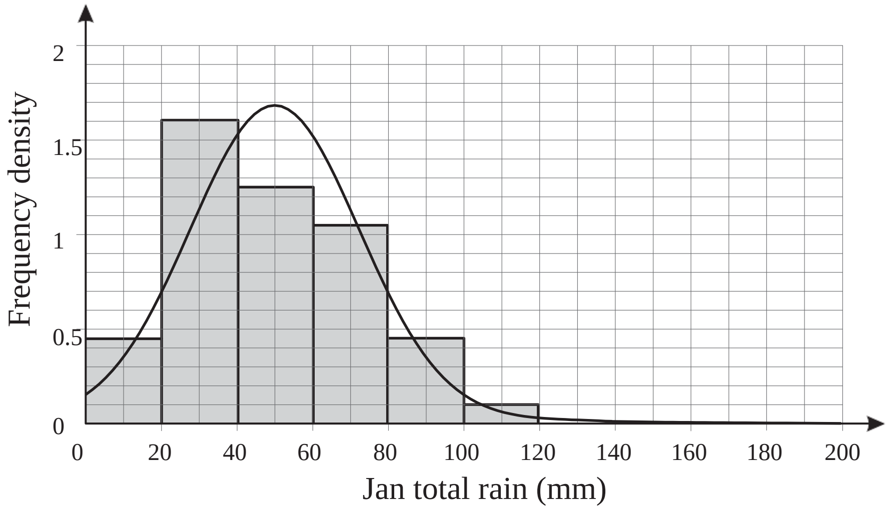
6 **a)** Mrs Jones is planning to fly from London to Chicago. She checks the weather forecast for the day of her flight. The probability of snow for these places is as follows.

London	60%
Chicago	80%

What is the probability that there will be snow in at least one of these two places on that day? You can assume that the weather in London and the weather in Chicago are independent of each other. **[5]**

6 (a)	

b) The histogram below shows the distribution of January rainfall near Royston for 98 years. A Normal distribution has the same mean and standard deviation as the rainfall data. Part of this Normal curve is shown on the diagram.



i) Use the Normal curve to write down an estimate of the mean and standard deviation of the rainfall data. **[3]**

ii) Give two reasons to reject the Normal distribution as a model for the rainfall data. **[2]**

6(b)(i)	
6(b)(ii)	

7 **a)** The population of the world in 1960 was 3040 million. In 1975, it was 4090 million.
Two models, A and B, for population growth are considered.

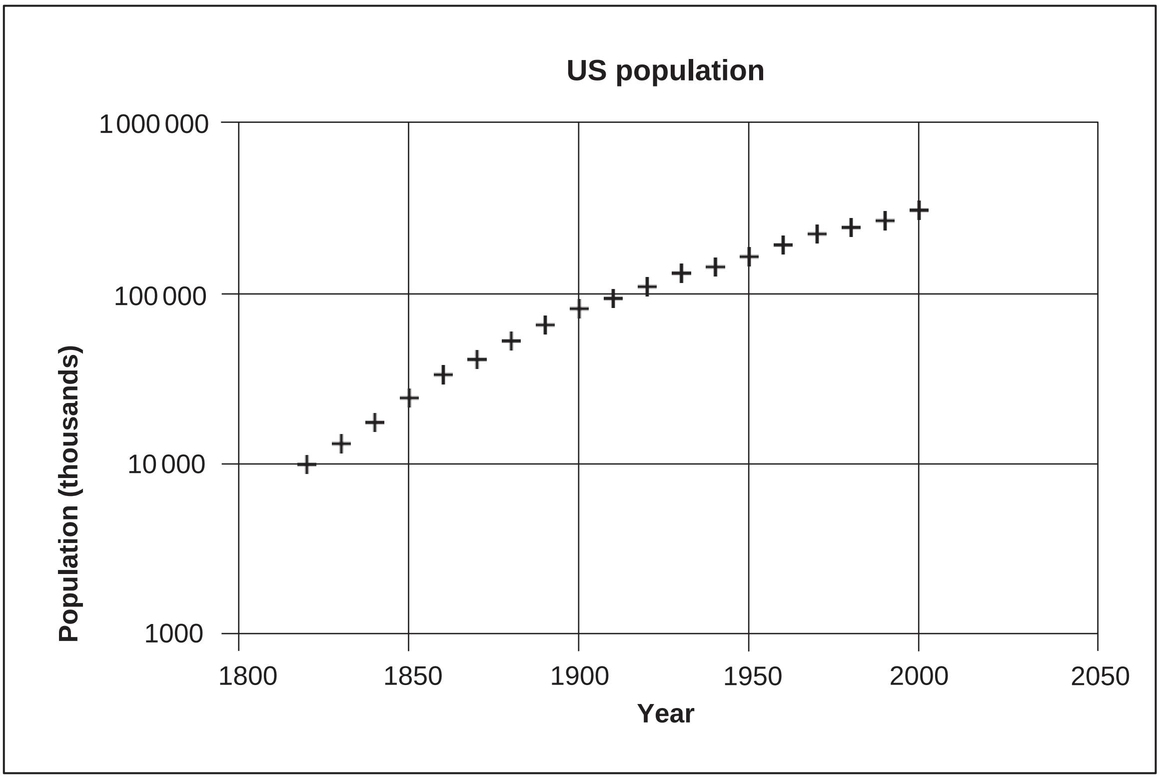
i) In model A the population grows by a constant number of people each year.
Show that the average increase from 1960 to 1975 is 70 million people per year. **[2]**

ii) In model B the population grows by a constant percentage each year.
What constant annual percentage growth rate from 1960 to 1975 would result in the population increasing from 3040 million to 4090 million?
Show your working clearly. **[3]**

iii) The population of the world in 2000 was 6090 million.
Work out which of the two models is better. **[5]**

7(a)(i)	
7(a)(ii)	
7(a)(iii)	

b) The spreadsheet chart below shows the population of the United States from 1820 to 2000.

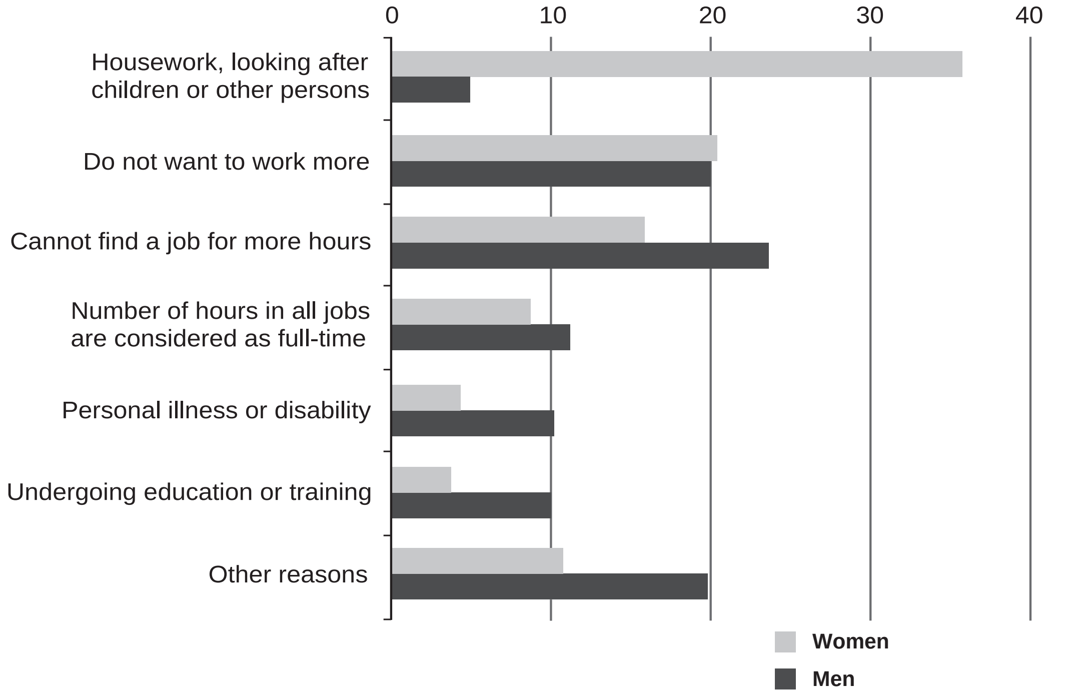


The vertical axis has a logarithmic scale.
What was the approximate population of the United States in 1860? **[3]**

7 (b)	

8 The chart below is from *Combating poverty and social exclusion: A statistical portrait of the European Union 2010*. The horizontal axis shows percentages.

Figure 2.9: Reasons for men and women working less than 30 hours per week, EU-27, 2007 (%)



Source: Eurostat (EU-SILC)

a) Suggest one way that the graph could have been improved to show the information more clearly. **[1]**

b) Did men responding to this survey **each** choose only one reason or more than one reason? You must justify your answer. **[3]**

c) There are four times as many women as men working less than 30 hours per week in the European Union.

i) Show that approximately 5% of people surveyed (men and women combined) give the reason ‘undergoing education or training’. **[2]**

ii) Find the corresponding percentage giving the reason ‘housework, looking after children or other persons’. **[2]**

8(a)	

8 (b)	
8(c)(i)	
8(c)(ii)	

9 A typical ant is about 5 mm long and weighs about 3 mg.

An actor is about 2 m tall and weighs about 80 kg.

A science fiction film script includes shrinking the actor to 5 mm tall.
As the actor shrinks, his weight is always directly proportional to his volume.

Compare the weight of the shrunken actor to the weight of the ant. **[5]**

9

END OF QUESTION PAPER

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…day June 20XX – Morning/Afternoon

Level 3 Certificate in Core Maths B (MEI)

H869/01 Introduction to Quantitative Reasoning

MARK SCHEME

Duration: 2 hours

MAXIMUM MARK 72

This document consists of 16 pages

MARKING INSTRUCTIONS

1. **Subject-specific Marking Instructions**

a Annotations should be used whenever appropriate during your marking.

The A, M and B annotations must be used on your standardisation scripts for responses that are not awarded either 0 or full marks. It is vital that you annotate standardisation scripts fully to show how the marks have been awarded.

For subsequent marking you must make it clear how you have arrived at the mark you have awarded.

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 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, award marks according to the spirit of the basic scheme; if you are in any doubt whatsoever (especially if several marks or candidates are involved) 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, eg 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
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.

E
A given result is to be established or a result has to be explained. This usually requires more working or explanation than the establishment of an unknown result.

Unless otherwise indicated, marks once gained cannot subsequently be lost, eg 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, exactly what is acceptable will be detailed in the mark scheme rationale. If this is not the case please consult your Team Leader.

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 Wrong or missing units in an answer should not lead to the loss of a mark unless the scheme specifically indicates otherwise. Candidates are expected to give numerical answers to an appropriate degree of accuracy, with 3 significant figures often being the norm. Small variations in the degree of accuracy to which an answer is given (e.g. 2 or 4 significant figures where 3 is expected) should not normally be penalised, while answers which are grossly over- or under-specified should normally result in the loss of a mark. The situation regarding any particular cases where the accuracy of the answer may be a marking issue should be detailed in the mark scheme rationale. If in doubt, contact your Team Leader.

g Rules for replaced work

If a candidate attempts a question more than once, and indicates which attempt he/she wishes to be marked, then examiners should do as the candidate requests.

If there are two or more attempts at a question which have not been crossed out, examiners should mark what appears to be the last (complete) attempt and ignore the others.

NB Follow these maths-specific instructions rather than those in the assessor handbook.

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 components. This is achieved by withholding one A mark in the question.

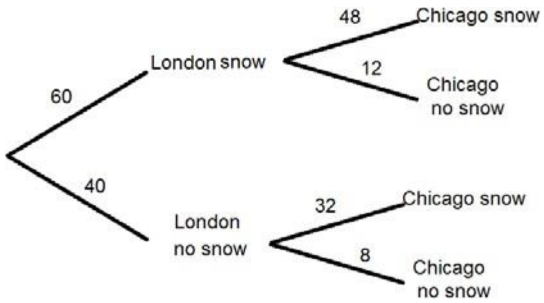
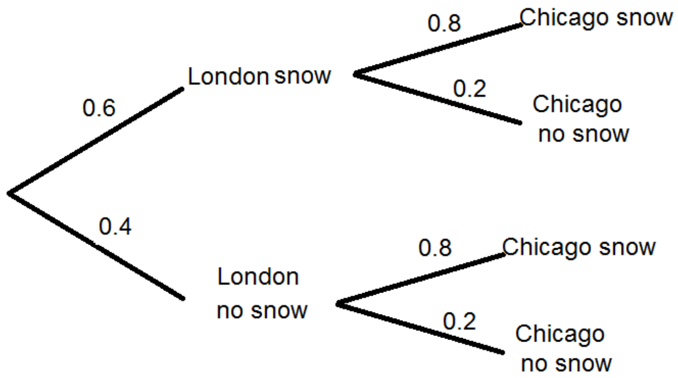
Note that a miscopy of the candidate's own working is not a misread but an accuracy error.

i 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.

Question			Answer	Marks	Guidance	
1	(a)		Use of 1.14	M1		**B3** for correct answer with no supporting working
			200 ÷ 1.14	M1	Implied by 175.438……	
			£175.44	A1		Condone missing pound sign
				[3]		
1	(b)		Sensibly rounded exchange rate approximation	M1	e.g. £1 is about \$1.50 **or** \$1.75 accept \$2	
			Sensible rounding of \$58.50	M1	Something rounded between \$55 and \$60 inclusive	Or for finding multiples of their exchange rate approx., working towards \$58.50
			Answer in range £27.50-£40 supported by correct working	A1		e.g. £1≈\$1.50 £4≈\$6 £40≈\$60 so about £40
				[3]		
2			Modelling path as a circle	E1		
			$2 \times \pi \times 1.5 \times 10^{11}$ m	M1	No need to state units	
			Dividing by 365 or 365.25	M1		
			Changing to km h^{-1}	M1		
			107588	A1	Any level of accuracy, need not have units	
			108 000 [km h^{-1}]	A1	**Or** 110 000 km h^{-1}	Decides to round to 2 or 3sf and rounds correctly
				[6]		

Question			Answer	Marks	Guidance	
3	**(a)**		3 and half hours with clients £25.55	**M1** **A1** **[2]**		
3	**(b)**	(i)	1 hour 40 mins	**B1** **[1]**		
3	**(b)**	(ii)	7 hours –(A) = 5 hours 20 mins £6.31 × working hours calculated £33.65	**M1** **M1** **A1** **[3]**	FT **(i)** throughout **(ii)** Rounded to nearest penny	
4	**(a)**		Sequence decreasing by 5 95, 90, 85, 80, 75, 70, 65, 60, 55	**M1** **A1** **[2]**	Or for reading from the graph	
4	**(b)**		=3*B2 oe	**2** **[2]**	**SC1** for 3*B2	
4	**(c)**		=B2*A2 - C2 or =(A2-3)*B2 oe	**2** **[2]**	**M1** for B2*A2 or (A2-3)	If = missed on both **(b)** and **(c)**, only penalise once.
4	**(d)**		Costs in table Profits in table Profits: 1235, 1260, 1275, 1280, 1275, 1260, 1235, 1200, 1155, 1100 [£] 19	**M1** **M1** **A1** **A1** **[4]**	285, 270, 255, 240, 225, 210, 195, 180, 165, 150 At least two correct values, allow FT FT their costs FT their costs	Profits after second 1275 may be missed out

Question			Answer	Marks	Guidance	
5	**(a)**		Identifying time when the cheetah is at its maximum speed.	**M1**	e.g. tangent drawn at time 3 seconds **OR** use of section 2 to 3 seconds as approx linear **OR** use of the section 3 to 4 seconds	**SC2** for answer in range with no supporting working Candidates gaining SC2 can also gain B1 for units
			Gradient of *their* tangent (or chord)	**M1**	**OR** horizontal and vertical distances for gradient found	
			Answer in range 25 to 35	**A1**		
			m/s or ms^{-1}	**B1**	including correct units	Allow metres per second in words
				[4]		
5	**(b)**		$\frac{50 \times 60 \times 60}{1000}$	**M1**		<u>Method 2</u> **M1 A1** for changing 70 miles to km (112) **M1 A1** for changing to m/s (31.1) and concluding not the same
			180 [km/h]	**A1**		
			$\frac{180}{8} \times 5$	**M1**		
			112.5 [mph] so not the same	**A1**	Allow 110 to 115 with supporting working	
				[4]		

Question			Answer	Marks	Guidance	
6	(a)				**Method 1** (look at for example 100 days)	**Method 3**
				M1	Tree diagram with branches labelled	**M1** for working with prob of not snowing
				A1	Correct partial frequencies on first set of branches	**A1** for 0.4 **A1** for 0.2 **M1** for 1 – 0.4 × 0.2 **A1** for final answer
				A1	Correct partial frequencies on at least one second set	
				M1	Adding frequencies (48+12+32) **or** total – no snow	
			92% oe	**A1**		
			ALTERNATIVE METHOD			
				**[5]**	**Method 2** (tree diagram) **M1** for tree diagram with branches labelled **A1** for 0.6 and 0.4 **A1** for 0.8 and 0.2 **M1** for 1 – 0.4 × 0.2 oe **A1** 0.92 or 92%	

Question			Answer	Marks	Guidance	
6	(b)	(i)	Mean = 50(mm) (number in range 120 to 140 minus *their* mean)/3 Sd = answer in range 23 to 30	B1 M1 A1 [3]	Accept answers in range 45-52 **OR** statement that max value = mean + 3SD Ft	
6	(b)	(ii)	The data are skewed/ not symmetrical The Normal distribution would allow negative values	E1 E1 [2]	Accept other appropriate answers	

Question			Answer	Marks	Guidance	
7	(a)	(i)	4090 - 3040 Divide by 15	**B1** **B1** **[2]**		
7	(a)	(ii)	4090/3040 [= 1.345…] 15^{th} root [=1.01997…] 2%	**M1** **M1** **A1** **[3]**	Allow unrounded	Only allow 2% with supporting working
7	(a)	(iii)	4090 +70 × 25[=4090 + 1750 = 5840] 1.02^{25} [=1.640…] 4090 × 1.640… [= 6710] Comparison Conclusion	**M1** **M1** **M1** **E1** **E1** **[5]**	Allow ft. Appropriate comparison supported by *their* figures. Appropriate conclusion supported by *their* figures	e.g. The actual population was in between the two figures **OR** finding differences [250 million and 620 million] **OR** saying actual population is nearer to 5840 million e.g. 70 million a year is better
7	(b)		$\sqrt{10 \times 100}$ Use of (thousands) on vertical scale Answer in range 25 million to 35 million	**M1** **M1** **A1** **[3]**	Possibly in thousands or millions Implied by any answer between 10 million and 100 million	**B3** for correct answer with no working

Question			Answer	Marks	Guidance	
8	(a)		One suggestion which improves clarity e.g. • squares to help read off, • lines at 5%, 15% etc as well as 10%, 20%, • % on number axis	E1 [1]		
8	(b)		Finding percentages for men Adding percentages for men They each gave one reason because percentages [for men] add up to 100	M1 M1 A1 [3]	 No marks if there is no justification given.	Accept alternative answer which follows through from *their* working
8	(c)	(i)	10 and 4 read off graph $\frac{4\times4+1\times10}{5}\approx5$ [%]	M1 A1 [2]	 Printed answer so working must be seen	**Alternative method** Out of 100 people working less than 30 hours, 80 are women and 20 men. About 3 women undergoing education and training and 2 men so 5 altogether
8	(c)	(ii)	$\frac{4\times36+1\times5}{5}$ 30[%]	M1 A1 [2]	 Answer in range 29-31	Out of 100 people working less than 30 hours, 80 are women and 20 men. About 29 women and 1 man looking after…..

Question			Answer	Marks	Guidance	
9			2 m = 2000 mm			
			Length is divided by 400	**M1**		
			Weight is divided by 400^3	**M1**	FT	
			New weight is 0.00000125 kg = 0.00125g	**M1**		
			3 mg = 0.003 g	**M1**	Making units comparable, maybe implied by correct conclusion	
			Shrunken actor weighs less than ant	**A1**	e.g. about half of ant weight	
				[5]		

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Assessment Objectives (AO) Grid

Question	AO1	AO2	AO3	Total
1 (a)	3			3
1 (b)	1		2	3
2	1	4	1	6
3 (a)	1		1	2
3 (b) (i)			1	1
3 (b) (ii)	1	1	1	3
4 (a)			2	2
4 (b)	2			2
4 (c)	2			2
4 (d)	1	3		4
5 (a)	2	2		4
5 (b)		2	2	4
6 (a)	2	2	1	5
6 (b) (i)	1		2	3
6 (b) (ii)			2	2
7 (a) (i)	1		1	2
7 (a) (ii)	2		1	3
7 (a) (iii)		4	1	5
7 (b)	1	1	1	3
8 (a)			1	1
8 (b)		1	2	3
8 (c) (i)		1	1	2
8 (c) (ii)		2		2
9		5		5
Totals	**21**	**28**	**23**	**72**

Oxford Cambridge and RSA

Level 3 Certificate in Core Maths B (MEI)

H869/01 Introduction to Quantitative Reasoning
Sample Insert

Date – Morning/Afternoon

NOTES FOR GUIDANCE (CANDIDATES)

- This leaflet contains pre-release material which is needed in preparation for the examination of H869/01 (Introduction to Quantitative Reasoning).
- You will need to read the material carefully. The examination paper will contain questions related to this material. You will be expected to apply your knowledge and understanding of the work covered in H869/01 (Introduction to Quantitative Reasoning) to answer the questions.
- You will **not** be able to bring your copy of the material, or other materials, into the examination. The examination paper will contain a fresh copy of the material as an insert.
- You will not have time to read this material for the first time in the examination if you are to complete the examination paper within the specified time. However, you should refer to the material when answering the questions.
- This document consists of **4** pages. Any blank pages are indicated.

INSTRUCTION TO EXAMS OFFICER/INVIGILATOR

- Do not send this Insert for marking; it should be retained in the centre or recycled. Please contact OCR Copyright should you wish to re-use this document.

Caring for the elderly

People who are elderly and/or disabled can pay to have a home care worker visit them at home. The home care worker can help with tasks such as getting up, washing, dressing and preparing food.

The person being cared for (or his/her family) pays for this care. The home care worker is usually employed by an agency which decides how much to charge for care. The charges are based on the number of hours of care needed. The home care worker might need to visit every day or just once or twice a week.

Some people being cared for every day will just need a morning visit and others will need a visit in the morning and another one in the evening.

The home care worker is paid by the agency for the time he/she works. He/she must be paid at least the national minimum wage; these rates are updated every October. The hourly rates from October 2013 are as follows.

Age	21 and over	18 to 20	Under 18	Apprentice
Hourly Rate	£6.31	£5.03	£3.72	£2.68

Working time includes the following.

- Being at work and required to work.
- Being on standby at work.
- Travelling connected to work, including travelling between jobs.
- Training at work.

The following are not included as part of working time.

- Travelling between home and work.
- Rest breaks.
- Holidays.
- Being on strike.

A government website gives the following examples.

Example 1
A care worker has 2 appointments in the morning and doesn't take any breaks. The worker must be paid the minimum wage for the time he spends at the appointments, plus the travel time.

Example 2
A care worker has 2 appointments in the morning. After the second appointment he goes home to have a break before he goes to his afternoon appointment. The time spent travelling between the second appointment and his home doesn't count towards the minimum wage.

If the care worker didn't go home but took a break on the way to his next appointment, he would be paid for any travel time but not for the break.

It is complicated to work out travel times for home care workers. Some agencies which employ home care workers just pay them for the time they spend with the clients being cared for. This is allowed, as long as the workers end up getting no less than they would if they were paid the minimum wage for all the time which counts as work, including travelling time between jobs. Some agencies do not pay carers enough to cover the cost of travel time.

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Oxford Cambridge and RSA

Level 3 Certificate

Core Maths B (MEI)

H869/01 Introduction to Quantitative Reasoning

Sample Pre-release Material

For issue on or after: Date/Year

NOTES FOR GUIDANCE (CANDIDATES)

- This leaflet contains pre-release material which is needed in preparation for the examination of H869/01 (Introduction to Quantitative Reasoning).
- You will need to read the material carefully. The examination paper will contain questions related to this material. You will be expected to apply your knowledge and understanding of the work covered in H869/01 (Introduction to Quantitative Reasoning) to answer the questions.
- You can seek advice from your teacher about the content of the material and you can discuss it with others in your class. You may also investigate the topic yourself using any resources available to you.
- You will **not** be able to bring your copy of the material, or other materials, into the examination. The examination paper will contain a fresh copy of the material as an insert.
- You will not have time to read this material for the first time in the examination if you are to complete the examination paper within the specified time. However, you should refer to the material when answering the questions.
- This document consists of **4** pages. Any blank pages are indicated.

INSTRUCTION TO EXAMS OFFICER/INVIGILATOR

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Caring for the elderly

People who are elderly and/or disabled can pay to have a home care worker visit them at home. The home care worker can help with tasks such as getting up, washing, dressing and preparing food.

The person being cared for (or his/her family) pays for this care. The home care worker is usually employed by an agency which decides how much to charge for care. The charges are based on the number of hours of care needed. The home care worker might need to visit every day or just once or twice a week.

Some people being cared for every day will just need a morning visit and others will need a visit in the morning and another one in the evening.

The home care worker is paid by the agency for the time he/she works. He/she must be paid at least the national minimum wage; these rates are updated every October. The hourly rates from October 2013 are as follows.

Age	21 and over	18 to 20	Under 18	Apprentice
Hourly Rate	£6.31	£5.03	£3.72	£2.68

Working time includes the following.
- Being at work and required to work.
- Being on standby at work.
- Travelling connected to work, including travelling between jobs.
- Training at work.

The following are not included as part of working time.
- Travelling between home and work.
- Rest breaks.
- Holidays.
- Being on strike.

A government website gives the following examples.

Example 1
A care worker has 2 appointments in the morning and doesn't take any breaks. The worker must be paid the minimum wage for the time he spends at the appointments, plus the travel time.

Example 2
A care worker has 2 appointments in the morning. After the second appointment he goes home to have a break before he goes to his afternoon appointment. The time spent travelling between the second appointment and his home doesn't count towards the minimum wage.

If the care worker didn't go home but took a break on the way to his next appointment, he would be paid for any travel time but not for the break.

It is complicated to work out travel times for home care workers. Some agencies which employ home care workers just pay them for the time they spend with the clients being cared for. This is allowed, as long as the workers end up getting no less than they would if they were paid the minimum wage for all the time which counts as work, including travelling time between jobs. Some agencies do not pay carers enough to cover the cost of travel time.

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