



Thursday 14 October 2021 – Afternoon

AS Level Further Mathematics B (MEI)

Y412/01 Statistics a

Printed Answer Booklet

Time allowed: 1 hour 15 minutes

You must have:

- Question Paper Y412/01 (inside this document)
- the Formulae Booklet for Further Mathematics B (MEI)
- a scientific or graphical calculator



Please write clearly in black ink. Do not write in the barcodes.								
Centre number					Candidate number			
First name(s)								
Last name								

INSTRUCTIONS

- Use black ink. You can use an HB pencil but only for graphs and diagrams.
- Write your answer to each question in the space provided in the Printed Answer Booklet. If you need extra space use the lined pages at the end of the Printed Answer Booklet. The question numbers must be clearly shown.
- Answer all the questions.
- Where appropriate, your answer should be supported with working. Marks might be given for using a correct method, even if your answer is wrong.
- Give your final answers to a degree of accuracy that is appropriate to the context.

INFORMATION

• This document has 12 pages.

ADVICE

· Read each question carefully before you start your answer.

1(a)	
	E(X) =
	Var(X) =
1(b)(i)	
1(b)(ii)	

2(a)	
2(b)	
	E(X) =
	Var(X) =
2(c)	

4

2(d)(i)	
2(d)(ii)	
_(-,/()	
3(a)	

3(b)	
3(c)	
3 (d)	

4(a)(i)	
4(a)(ii)	
4(b)	

5 (a)	
5(b)	
5(c)	

6(a)	
6(b)(i)	220 200 X
6(b)(ii)	

6(c)	
6(d)	
	Prediction for 40 years =
	Prediction for 5 years =
6(e)	

7(a)(i)	
7 (a)(ii)	
7 (b)	
7 (b)	
7(b)	
7 (b)	
7(b)	(answer space continued on next page)

Number of butterflies	7(b)	(continu	ucu)				
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$				Frequency	Probability	Expected frequency	Chi-squared contribution
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$			0	6	0.0369	3.6883	1.4489
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$			1	9	0.1217	12.1714	0.8264
4 13 0.1823 18.2252 1.4981 5 16 0.1203 12.0286 6 9 0.0662 6.6158 0.8593 ≥7 3 0.0510 5.0966 0.8625			2	18			0.2160
5 16 0.1203 12.0286 6 9 0.0662 6.6158 0.8593 ≥7 3 0.0510 5.0966 0.8625			3	26			0.6916
6 9 0.0662 6.6158 0.8593 ≥7 3 0.0510 5.0966 0.8625			4	13	0.1823	18.2252	1.4981
≥7 3 0.0510 5.0966 0.8625			5	16	0.1203	12.0286	
			6	9	0.0662	6.6158	0.8593
			≥7	3	0.0510	5.0966	0.8625

12 ADDITIONAL ANSWER SPACE

If additional space is required, you should use the following lined page(s). The question number(s) must be clearly shown in the margin(s).



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