OCR
Oxford Cambridge and RSA

Tuesday 14 June 2022 – Afternoon
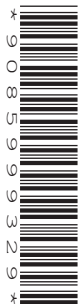
A Level Mathematics A

H240/02 Pure Mathematics and Statistics

Printed Answer Booklet

Time allowed: 2 hours

You must have:
• Question Paper H240/02 (inside this document)
• 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 non-exact numerical answers correct to **3** significant figures unless a different degree of accuracy is specified in the question.
• The acceleration due to gravity is denoted by $g\,\mathrm{m\,s^{-2}}$. When a numerical value is needed use $g = 9.8$ unless a different value is specified in the question.

INFORMATION
• The total mark for this paper is **100**.
• The marks for each question are shown in brackets **[ ]**.
• This document has **20** pages.

ADVICE
• Read each question carefully before you start your answer.

Section A: Pure Mathematics

1(a)

1(b)

1(c)

2(a)

2(b)

Turn over

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

3(c)

3(c)

6

4

5(a)

5(b)

6(a)

Graph	One-one function	Many-one function	A function that is its own inverse	Not a function
Fig. 1.1				
Fig. 1.2				
Fig. 1.3				
Fig. 1.4				
Fig. 1.5				

6(b)

7(a)

7(b)

8

Section B: Statistics

9(a)

9(b)(i)

9(b)(ii)

9(c)

Turn over

9(d)

9(e)(i)

x	Below 20	20 to 30	30 to 35	35 to 40	40 to 45	45 to 50	50 to 60	Above 60
Probability obtained from histogram	0.027	0.147	0.153	0.187	0.193	0.147	0.133	0.013
Probability obtained from Sam's model, N(40, 100)	0.023		0.150	0.191			0.136	0.023
Probability obtained from Nina's model, N(m, s^2)	0.030		0.153	0.188			0.130	0.023

9(e)(ii)	

DO NOT WRITE IN THIS SPACE

10(a)(i)

10(a)(ii)

10(a)(iii)

10(b)(i)

10(b)(ii)

10(c)

10(d)

10(e)

11

Turn over

12(a)

12(b)	

DO NOT WRITE IN THIS SPACE

Turn over

13(a)

13(b)

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).