



Cambridge International AS & A Level

CANDIDATE NAME



CENTRE NUMBER

--	--	--	--	--

CANDIDATE NUMBER

--	--	--	--



MATHEMATICS

9709/53

Paper 5 Probability & Statistics 1

October/November 2025

1 hour 15 minutes

You must answer on the question paper.

You will need: List of formulae (MF19)

INSTRUCTIONS

- Answer **all** questions.
- Use a black or dark blue pen. You may use an HB pencil for any diagrams or graphs.
- Write your name, centre number and candidate number in the boxes at the top of the page.
- Write your answer to each question in the space provided.
- Do **not** use an erasable pen or correction fluid.
- Do **not** write on any bar codes.
- If additional space is needed, you should use the lined page at the end of this booklet; the question number or numbers must be clearly shown.
- You should use a calculator where appropriate.
- You must show all necessary working clearly; no marks will be given for unsupported answers from a calculator.
- Give non-exact numerical answers correct to 3 significant figures, or 1 decimal place for angles in degrees, unless a different level of accuracy is specified in the question.

INFORMATION

- The total mark for this paper is 50.
- The number of marks for each question or part question is shown in brackets [].

This document has **16** pages. Any blank pages are indicated.





BLANK PAGE

DO NOT WRITE IN THIS MARGIN





5 Chen has three boxes. Box A contains 5 counters, of which 3 are white and 2 are yellow. Box W contains 4 red marbles and 3 blue marbles. Box Y contains 5 red marbles and 3 blue marbles.

Chen chooses one counter at random from box A . If the counter is white, he chooses two marbles from box W , at random and without replacement. If the counter is yellow, he chooses two marbles from box Y , at random and without replacement.

(a) Draw a fully labelled tree diagram to illustrate this information, including all the probabilities. [3]

DO NOT WRITE IN THIS MARGIN





(b) Find the probability that one red marble and one blue marble are obtained.

[3]

Dotted lines for writing the answer to question (b).

(c) Find the probability that a white counter is chosen from box *A*, given that one red marble and one blue marble are obtained.

[2]

Dotted lines for writing the answer to question (c).



DO NOT WRITE IN THIS MARGIN



6 Last Saturday, a cycling competition for teams of 11 cyclists took place. For each cyclist, the time taken to complete the course was recorded to the nearest minute. The times taken by the cyclists from two teams, the Linnets and the Puffins, are shown in the following table.

Linnets	48	51	54	57	59	60	64	64	65	68	70
Puffins	45	49	51	55	55	58	59	62	64	64	74

(a) Draw a back-to-back stem-and-leaf diagram to represent this information, with Linnets on the left-hand side. [4]

(b) Find the interquartile range of the times taken by the Linnets. [2]

.....

.....

.....

.....

.....

.....

.....

.....

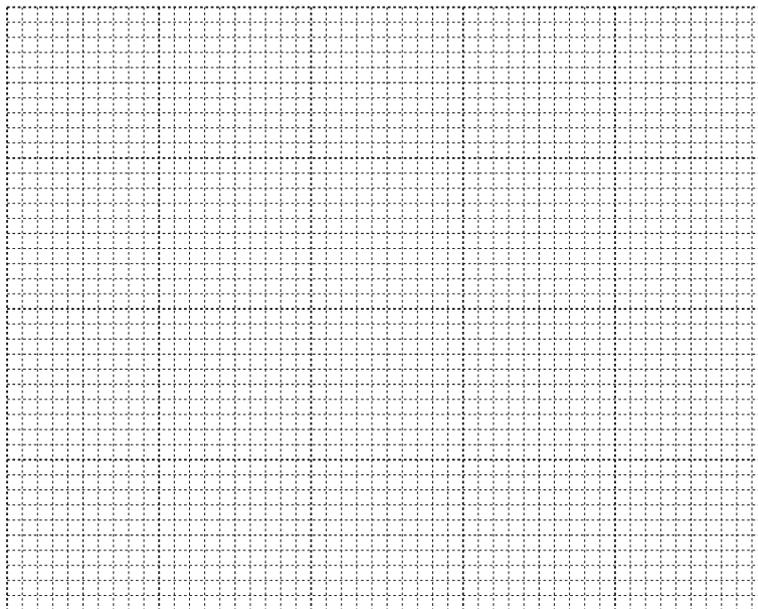
.....

.....

.....



- (c) On the grid below, draw a box-and-whisker plot to represent the information for the Linnets and the Puffins. [3]



.....

.....

.....

.....

.....

- (d) Make one comparison between the times taken by the Linnets and the times taken by the Puffins. [1]

.....

.....

.....

.....

.....

.....

.....

.....

DO NOT WRITE IN THIS MARGIN





7 The times taken by Obi to walk to work each morning are normally distributed with mean 14.8 minutes and standard deviation 1.5 minutes.

(a) Find the probability that, on a randomly chosen day, Obi takes more than 15.6 minutes to walk to work. [3]

.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....

(b) On 90% of days, Obi takes more than t minutes to walk to work.
Find the value of t . [3]

.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....

DO NOT WRITE IN THIS MARGIN



* 00080000015 *

DFD



DO NOT WRITE IN THIS MARGIN





DO NOT WRITE IN THIS MARGIN

Permission to reproduce items where third-party owned material protected by copyright is included has been sought and cleared where possible. Every reasonable effort has been made by the publisher (UCLES) to trace copyright holders, but if any items requiring clearance have unwittingly been included, the publisher will be pleased to make amends at the earliest possible opportunity.

To avoid the issue of disclosure of answer-related information to candidates, all copyright acknowledgements are reproduced online in the Cambridge Assessment International Education Copyright Acknowledgements Booklet. This is produced for each series of examinations and is freely available to download at www.cambridgeinternational.org after the live examination series.

Cambridge Assessment International Education is part of Cambridge Assessment. Cambridge Assessment is the brand name of the University of Cambridge Local Examinations Syndicate (UCLES), which is a department of the University of Cambridge.

