



Cambridge Assessment International Education

Cambridge International Advanced Subsidiary and Advanced Level

CANDIDATE NAME			
CENTRE NUMBER		CANDIDATE NUMBER	
MATHEMATICS			9709/63
Paper 6 Probability	& Statistics 1 (S1)		May/June 2019
			1 hour 15 minutes
Candidates answer	on the Question Paper.		
Additional Materials:	List of Formulae (MF9)		

READ THESE INSTRUCTIONS FIRST

Write your centre number, candidate number and name in the spaces at the top of this page.

Write in dark blue or black pen.

You may use an HB pencil for any diagrams or graphs.

Do not use staples, paper clips, glue or correction fluid.

DO NOT WRITE IN ANY BARCODES.

Answer **all** the questions in the space provided. If additional space is required, you should use the lined page at the end of this booklet. The question number(s) must be clearly shown.

Give non-exact numerical answers correct to 3 significant figures, or 1 decimal place in the case of angles in degrees, unless a different level of accuracy is specified in the question.

The use of an electronic calculator is expected, where appropriate.

You are reminded of the need for clear presentation in your answers.

At the end of the examination, fasten all your work securely together.

The number of marks is given in brackets [] at the end of each question or part question.

The total number of marks for this paper is 50.



The time taken, in minutes, by a ferry to cross a lake has a normal distribution with mean 85 and

ake is between 79 and 91 minutes.
Find the value of t .

2	Megan sends messages to her friends in one of 3 different ways: text, email or social media. For message, the probability that she uses text is 0.3 and the probability that she uses email is 0.2. receives an immediate reply from a text message with probability 0.4, from an email with probability 0.15 and from social media with probability 0.6.	She
	(i) Draw a fully labelled tree diagram to represent this information.	[2]
	(ii) Given that Megan does not receive an immediate reply to a message, find the probability that message was an email.	t the

Mr and Mrs Keene and their 5 children all go to watch a football match, together with their friends

) I	Mr Keene stands at one end of the line and Mr Uzuma stands at the other end.	
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		•••
		•••
		•••
		•••
	The 5 Keene children all stand together and the Uzuma children both stand together.	•••
	The 5 Keene children all stand together and the Uzuma children both stand together.	
		•••
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	there must be at least twice as many men as there are women on the committee.	
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		••••
		••••
		••••
(ii)	Find the number of ways a committee of 6 people can be chosen from 8 men and 4 wo	
	Find the number of ways a committee of 6 people can be chosen from 8 men and 4 wo particular men refuse to be on the committee together.	 om
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	random sample of 14 people who go to the theatre is chosen. Find the probability that a people are men.
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he theatre, fewer than 190 are men.	[5

A fair five-sided spinner has sides numbered 1, 1, 1, 2, 3. A fair three-sided spinner has sides numbered

1, 2, 3. Both spinners are spun once and the score is the product of the numbers on the sides the

1	Draw up the probability distribution table for the score.
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) Find the mean and the variance of the score.	[3
	•••••
Find the probability that the score is greater than the mean score.	[2
, a mo eno passassimo, unas uno secre lo grandor unam uno meam social.	ι-
	•••••

7 The times in minutes taken by 13 pupils at each of two schools in a cross-country race are recorded in the table below.

Thaters School	38	43	48	52	54	56	57	58	58	61	62	66	75
Whitefay Park School	45	47	53	56	56	61	64	66	69	73	75	78	83

(i) Draw a back-to-back stem-and-leaf diagram to illustrate these times with Thaters School on the left.

(ii)	Find the interquartile range of the times for pupils at Thaters School.	[2]

The times taken by pupils at Whitefay Park School are denoted by x minutes. (iii) Find the value of $\Sigma(x-60)^2$. [2] (iv) It is given that $\Sigma(x-60) = 46$. Use this result, together with your answer to part (iii), to find the variance of x. [2]

Additional Page

If you use the following fined page to complete the answer(s) to any question(s), the question number(s) must be clearly shown.

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