



Cambridge International Examinations

Cambridge International Advanced Subsidiary and Advanced Level

NAME			
CENTRE NUMBER		CANDIDATE NUMBER	
MATHEMATICS			9709/63
Paper 6 Probability &	Statistics 1 (S1)		May/June 2017
			1 hour 15 minutes
Candidates answer or	n 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.

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.



probability tha	y that George goot t in 270 days Geo	orge goes swin	nming at least	100 times.		
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3

the C	nop sells two makes of coffee, Café Premium and Café Standard. Both coffees come in the jars and small jars. Of the jars on sale, 65% are Café Premium and 35% are Café Standard, 25% of the jars are large and of the Café Standard, 25% of the jars are large and	ıdard.
(i)	Find the probability that the jar is small.	
		•••••
		•••••
		••••••
(ii)	Find the probability that the jar is Café Standard given that it is large.	
(ii)	Find the probability that the jar is Café Standard given that it is large.	
(ii)	Find the probability that the jar is Café Standard given that it is large.	
(ii)	Find the probability that the jar is Café Standard given that it is large.	
(ii)	Find the probability that the jar is Café Standard given that it is large.	
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	The random variable X has the distribution $N(\mu, \sigma^2)$, where $\mu = 1.5\sigma$. A random value of X is chosen. Find the probability that this value of X is greater than 0. [3]
(b)	The life of a particular type of torch battery is normally distributed with mean 120 hours and standard deviation s hours. It is known that 87.5% of these batteries last longer than 70 hours. Find the value of s .
	Find the value of s. [3]

5

Hebe attempts a crossword puzzle every day. The number of puzzles she completes in a week (7 days)

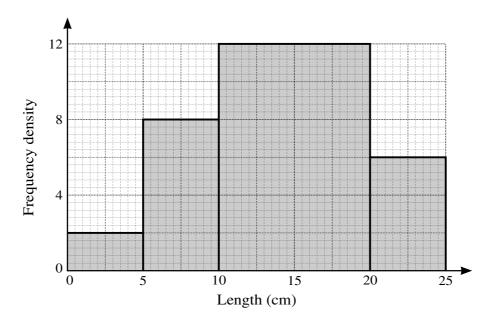
State two conditions	as that are required for X to have a binomial	distribution.
	eletes 7 out of 10 of these puzzles.	
Use a binomial dist week.	stribution to find the probability that Hebe	completes at least 5 puzzle
•••••		

4 or fewer puzzles in exactly 3 of the 10 weeks.	
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(i)	if digits are not repeated,	[2]
(ii)	if digits can be repeated and the number formed is odd.	[3]
(ii)	if digits can be repeated and the number formed is odd.	
(ii)		

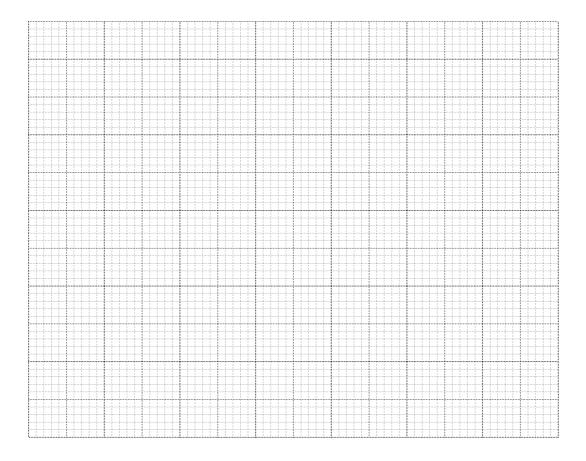
(b)		ox of 20 biscuits contains 4 different chocolate biscuits, 2 different oatmeal biscuits and 14 grent ginger biscuits. 6 biscuits are selected from the box at random.
	(i)	Find the number of different selections that include the 2 oatmeal biscuits. [2]
	(ii)	Find the probability that fewer than 3 chocolate biscuits are selected. [4]

7 The following histogram represents the lengths of worms in a garden.



)	Calculate the frequencies represented by each of the four histogram columns. [2]

(ii) On the grid on the next page, draw a cumulative frequency graph to represent the lengths of worms in the garden. [4]



(iii)	Use your graph to estimate the median and interquartile range of the lengths of worms in the garden. [3]

Calculate an estimate of the mean length of worms in the garden.	

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