



UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS  
General Certificate of Education  
Advanced Subsidiary Level and Advanced Level

**MATHEMATICS**

**9709/62**

Paper 6 Probability & Statistics 1 (S1)

**October/November 2009**

**1 hour 15 minutes**

Additional Materials:      Answer Booklet/Paper  
   Graph Paper  
   List of Formulae (MF9)



**READ THESE INSTRUCTIONS FIRST**

If you have been given an Answer Booklet, follow the instructions on the front cover of the Booklet.  
Write your Centre number, candidate number and name on all the work you hand in.  
Write in dark blue or black pen.  
You may use a soft pencil for any diagrams or graphs.  
Do not use staples, paper clips, highlighters, glue or correction fluid.

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.  
Questions carrying smaller numbers of marks are printed earlier in the paper, and questions carrying larger numbers of marks later in the paper.

This document consists of **3** printed pages and **1** blank page.



- 6 The following table gives the marks, out of 75, in a pure mathematics examination taken by 234 students.

Marks	1–20	21–30	31–40	41–50	51–60	61–75
Frequency	40	34	56	54	29	21

- (i) Draw a histogram on graph paper to represent these results. [5]
- (ii) Calculate estimates of the mean mark and the standard deviation. [4]
- 7 The weights,  $X$  grams, of bars of soap are normally distributed with mean 125 grams and standard deviation 4.2 grams.
- (i) Find the probability that a randomly chosen bar of soap weighs more than 128 grams. [3]
- (ii) Find the value of  $k$  such that  $P(k < X < 128) = 0.7465$ . [4]
- (iii) Five bars of soap are chosen at random. Find the probability that more than two of the bars each weigh more than 128 grams. [4]

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