



22127306



MATHEMATICS
STANDARD LEVEL
PAPER 2

Friday 4 May 2012 (morning)

1 hour 30 minutes

Candidate session number

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Examination code

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INSTRUCTIONS TO CANDIDATES

- Write your session number in the boxes above.
- Do not open this examination paper until instructed to do so.
- A graphic display calculator is required for this paper.
- Section A: answer all questions in the boxes provided.
- Section B: answer all questions on the answer sheets provided. Write your session number on each answer sheet, and attach them to this examination paper and your cover sheet using the tag provided.
- At the end of the examination, indicate the number of sheets used in the appropriate box on your cover sheet.
- Unless otherwise stated in the question, all numerical answers should be given exactly or correct to three significant figures.
- A clean copy of the **Mathematics SL information booklet** is required for this paper.
- The maximum mark for this examination paper is [90 marks].



0112

4. [Maximum mark: 6]

The heights of a group of seven-year-old children are normally distributed with mean 117 cm and standard deviation 5 cm. A child is chosen at random from the group.

- (a) Find the probability that this child is taller than 122.5 cm. [3 marks]
- (b) The probability that this child is shorter than k cm is 0.65. Find the value of k . [3 marks]

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7. [Maximum mark: 8]

A factory makes lamps. The probability that a lamp is defective is 0.05. A random sample of 30 lamps is tested.

- (a) Find the probability that there is at least one defective lamp in the sample. [4 marks]
- (b) Given that there is at least one defective lamp in the sample, find the probability that there are at most two defective lamps. [4 marks]

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