

Personalised Learning Checklist

MEI A Level Maths/Further Maths

Module S1

1. Assumed Knowledge

Understand the meanings of the terms population and sample.

Be aware of the concept of random sampling.

Know how to classify data as categorical, discrete or continuous.

Understand the meaning of and be able to construct frequency tables for ungrouped data and grouped data.

Know how to display categorical data using a pie chart or a bar chart.

Know how to display and interpret data on a stem and leaf diagram.

Know how to display and interpret data on a box and whisker plot.

Know how to find median, mean, mode.

Know how to find range, quartiles and interquartile range.

2. Data Presentation

Know how to display discrete data using a vertical line chart.

Know how to display continuous data using a histogram for both unequal and equal class intervals.

Know how to display and interpret a cumulative frequency distribution.

Know how to classify frequency distributions showing skewness.

Know how to find midrange.

Know the usefulness of each measure of central tendency.

R

A

G

Know how to find percentiles.			
Know how to calculate and interpret mean squared deviation, root mean squared deviation, variance and standard deviation.			
Be able to use the statistical functions of a calculator to find mean, root mean square deviation and standard deviation.			
Know how the mean and standard deviation are affected by linear coding.			
Understand the term outlier.			
3. Probability			
Know how to calculate the probability of one event.			
Know that the probability of an event may be found by finding that of its complementary event.			
Know how to draw sample space diagrams to help calculate probabilities.			
Know how to calculate the expected frequency of an event given its probability.			
Understand the concepts of mutually exclusive events and independent events.			
Know to add probabilities for mutually exclusive events.			
Know to multiply probabilities for independent events.			
Know how to use tree diagrams to assist in the calculation of probabilities.			
Know how to calculate probabilities for two events which are not mutually exclusive.			
Be able to use Venn diagrams to help calculations of probabilities for up to three events			
Know how to calculate conditional probabilities by formula, from tree diagrams or sample space diagrams			
Know that $P(B A) = P(B)$ B and A are independent.			
4. Discrete Random Variables			

Be able to use probability functions, given algebraically or in tables.			
Be able to calculate the numerical probabilities for a simple distribution.			
Be able to calculate the expectation (mean), $E(X)$, in simple cases, and understand it's meaning			
Be able to calculate the variance, $\text{Var}(X)$, in simple cases			
5. The Binomial Distribution and its use in Hypothesis Testing			
Recognise situations which give rise to a binomial distribution.			
Be able to identify the binomial parameter p , the probability of success.			
Be able to calculate probabilities using the binomial distribution.			
Know that nC_r is the number of ways of selecting r objects from n .			
Know that $n!$ is the number of ways of arranging n objects in line.			
Understand and apply mean = np .			
Be able to calculate the expected frequencies of the various possible outcomes from a series of binomial trials.			
Understand the process of hypothesis testing and the associated vocabulary.			
Be able to identify Null and Alternative Hypotheses when setting up a hypothesis test on a binomial probability model.			
Be able to conduct hypothesis tests at various levels of significance.			
Be able to identify the critical and acceptance regions.			
Be able to draw a correct conclusion from the results of a hypothesis test on a binomial probability model.			
Understand when to apply 1- tail and 2- tail tests.			