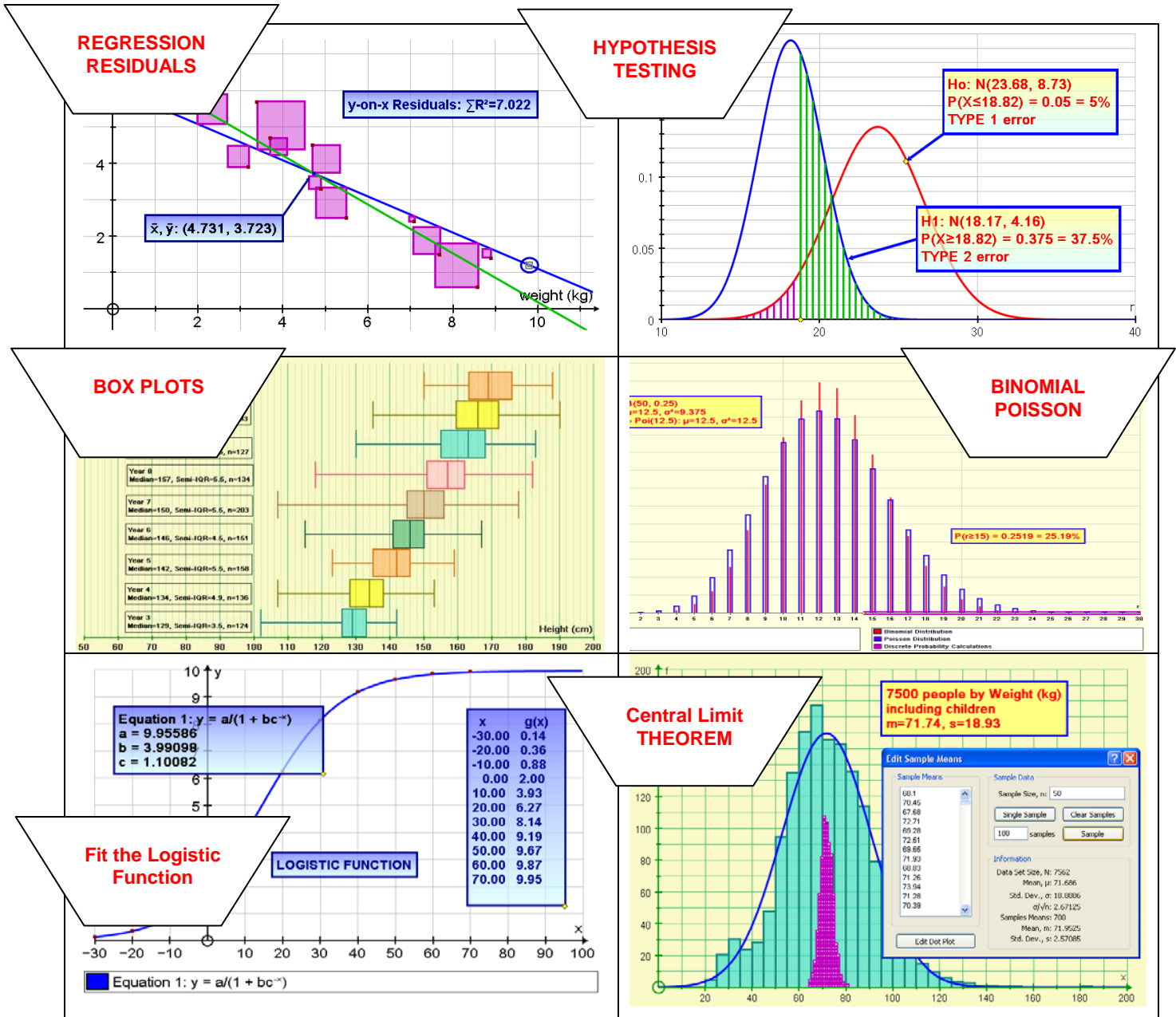


# Autograph

version 3

## and COLLEGE STATISTICS

Autograph is spectacular dynamic software from the UK that allows teachers to visualise many of the mathematical topics that occur in the various college level STATISTICS courses.



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# USA 2-YEAR COLLEGE STATISTICS COURSES

with references to AUTOGRAPH



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## ELEMENTS OF STATISTICS

### I. Nature of Statistics

- A. **Inferential vs. Descriptive Statistics**
- B. **Classification of Statistical Studies**
- C. **Development of Inferential Statistics**



### II. Organizing Data

- A. **Types of Data**
- B. **Grouping Data**
- C. **Stem-and-leaf Diagrams**
- D. **Misleading Graphs**



### III. Descriptive Measures

- A. **Measures of Central Tendency**
- B. **Summation Notation: the Sample Mean**
- C. **Measures of Dispersion: the Sample Standard Deviation**
- D. **Interpretation of the Standard Deviation: z-scores**
- E. **Percentiles: box-and-whisker Diagrams**



### IV. Probability Concepts

- A. **Introduction: Classical Probability**
- B. **Discrete Random Variables: Probability Distributions**



### V. Normal Distribution

- A. **Standard Normal Curve**
- B. **Normal Curves**
- C. **Normally Distributed Populations**
- D. **Normally Distributed Random Variables**



### VI. Sampling Distributions

- A. **Sampling: Random Samples**
- B. **Sampling Error: the Need for Sampling Distributions**
- C. **The Mean and Standard Deviation of the Sample Mean**
- D. **The Sampling Distribution of a Mean**
- E. **The Sampling Distribution of a Proportion**



## 2-YEAR COLLEGE STATISTICS

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### VII. Inferential Statistics - Estimation - One Population

- A. **Estimating a Population Mean**
- B. Estimating a Population Proportion
- C. **Confidence Intervals for one Population Mean**
- D. Confidence Intervals for one Population Proportion
- E. Sample Size Considerations
- F. **Confidence Intervals for a Normal Population**



### VIII. Inferential Statistics - Hypothesis Testing - One Population

- A. **The Nature of Hypothesis Testing**
- B. **Terms, Errors, and Hypotheses**
- C. **Large Sample Hypothesis Tests for a Population Mean**
- D. Large Sample Hypothesis Tests for a Population Proportion
- E. **Hypothesis Tests for a Normal Population**



### IX. Inferential Statistics - Two Populations

- A. Confidence Intervals Concerning Two Population Means
- B. Confidence Intervals Concerning Two Population Proportions
- C. Hypothesis Tests Concerning Two Population Means
- D. Hypothesis Tests Concerning Two Population Proportions
- E. Independent Samples
- F. Paired Samples

### X. Chi-square Procedures

- A. The Chi-square Distribution
- B. Chi-square goodness-of-fit test
- C. Chi-square Independence Test

### XI. Methods in Linear Regression

- A. **Linear Equations with One Dependent Variable**
  - B. **Regression Equation**
  - C. Coefficient of Determination
  - D. **Linear Correlation**
  - E. Inferences in Correlation
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## 2-YEAR COLLEGE STATISTICS

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### MATHEMATICAL ANALYSIS FOR BUSINESS

#### IV. Probability

- A. Sample Spaces and Events
- B. Fundamental principle of counting
- C. Conditional probability
- D. Independent events
- E. Bayes' theorem

#### V. Discrete probability distributions

- A. Discrete random variables
- B. Expectation
- C. **Bernoulli trials and the binomial distribution**

#### VI. Continuous probability distributions

- A. **Review of Integration**
- B. **Continuous random variables**
- C. **Uniform and exponential distributions**
- D. **Standard Normal Curve**
- E. **Normal Curves**
- F. **Normally Distributed Populations**
- G. **Normally Distributed Random Variables**

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