

Part I: Exploring Data

Exploring Data accounts for 20%-30% of the material covered on the AP Exam. “*Exploratory analysis of data makes use of graphical and numerical techniques to study patterns and departures from patterns. Emphasis should be placed on interpreting information from graphical and numerical displays and summaries.*”

Check your understanding of the following topics from Chapters 1-4 of YMS2e.

I. EXPLORING DATA: DESCRIBE PATTERNS AND DEPARTURES FROM PATTERNS

A. Constructing and interpreting graphical displays of distributions of univariate data (dotplot, stemplot, histogram, cumulative frequency plot)

- 1. Center and spread
- 2. Clusters and gaps
- 3. Outliers and other unusual features
- 4. Shape

B. Summarizing distributions of univariate data

- 1. Measuring center: median, mean
- 2. Measuring spread: range, interquartile range, standard deviation
- 3. Measuring position: quartiles, percentiles, standardized scores (z-scores)
- 4. Using boxplots
- 5. The effect of changing units on summary measures

C. Comparing distributions of univariate data (dotplots, back-to-back stemplots, parallel boxplots)

- 1. Comparing center and spread: within group, between group variation
- 2. Comparing clusters and gaps
- 3. Comparing outliers and other unusual features
- 4. Comparing shapes

D. Exploring bivariate data

- 1. Analyzing patterns in scatterplots
- 2. Correlation and linearity
- 3. Least-squares regression line
- 4. Residual plots, outliers, and influential points
- 5. Transformations to achieve linearity: logarithmic and power transformations

E. Exploring categorical data

- 1. Frequency tables and bar charts
- 2. Marginal and joint frequencies for two-way tables
- 3. Conditional relative frequencies and association
- 4. Comparing distributions using bar charts

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AP Exam Free Response Questions Related to Exploring Data in YMS2e

Adapted from a compilation by Jared Derksen and Duane Hinders

Chapter 1: Describing Data						
1997:1	1998:2	2000:1,3	2001:1, 6a	2002:1	2002B:1a,5,6c	2003:1,6a
2004:1	2004B:1a,5a	2005:1a, 2cd,6b	2005B:1	2006:1,6b	2006B:1	

Chapter 2: The Normal Distributions							
1998:6ad	1999:4ac	2000:6b	2000:3ac	2003:3ab	2004B:3ab	2005B:6b	2006B:3c

Chapter 3: Examining Bivariate Relationships				
1997:6	1998:4	1999:1	2002:4	2002B:1bcd
2003B:1	2004B:1bc	2005:3	2005B:5ab	2006:2ab

Chapter 4: More About Bivariate Relationships				
1997:6abcd	2000:4b			