

2017 AP Statistics Summer Assignment

Mrs. Richardson

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- Read Chapters 1-4 of “Stats Modeling the World”. If you did not obtain a copy of the textbook from Mrs. Richardson you can get one from the High School office.
- Complete the reading guides in detail for each chapter. When explaining, describing, defining, comparing, etc. please use complete sentences. The scoring of the AP exam requires responses to be written in complete sentences and in CONTEXT. This skill is incorporated into everything that we learn.
- Purchase a TI-84 Graphing Calculator. If you already have a TI-83 that will be fine. No other calculators are allowed.
- Complete the “Statistics with TI 83/84” worksheet.
- All reading guides and the worksheet are due the first day of class and are worth a quiz grade. If your work is not turned in on time you will be withdrawn from the course.
- Be prepared for a test on this information on the 2nd day of school.

Statistics with TI-83/84

1. Review **Calculator Tips** from pages **14 & 15**. Be sure you are comfortable entering data into lists, editing and deleting your list.

2. Read **TI Tips** on making a Histogram, **p. 46**. Be sure you understand how to create a histogram. Also be clear on the window setups and what they represent. Use “Zoom, choice 9” to graph the histogram and not just the “graph” button. Zoom 9 automatically sets an appropriate window for you.

3. Draw a sketch of your histogram:



4. Is your histogram uniform, unimodal, bimodal, or multimodal?

5. Is your histogram skewed left, skewed right, or symmetric?

6. Read **TI Tips** on **page 65**, Calculating the Statistics. For the below data list, give the requested statistics by using your calculator: 14, 13, 20, 22, 18, 19, 13

Mean (\bar{X}) =

Standard Deviation (S_x) =

Count (n) =

Smallest Datum (min) =

1st Quartile (Q_1) =

Median (med) =

3rd Quartile (Q_3) =

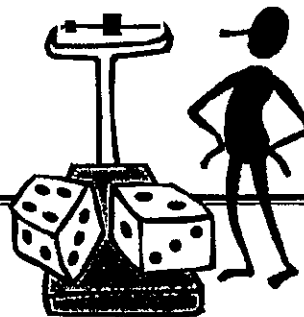
Largest Datum (max) =

Interquartile Range =

Range =

7. Circle the answers above that are part of the 5 number summary.

Chapter 1: Stats Starts Here



Key Vocabulary:

- | | | |
|---------------|---------------------|----------------|
| ▪ Statistics | ▪ subject | |
| ▪ data, datum | ▪ participant | |
| ▪ variation | ▪ experimental unit | |
| ▪ individual | ▪ observation | ▪ categorical |
| ▪ respondent | ▪ variable | ▪ quantitative |

Calculator Skills:

- | | | |
|------------------------|-------------------|-------------------|
| ▪ enter data in a list | ▪ delete a datum | ▪ recreate a list |
| ▪ change a datum | ▪ name a new list | ▪ copy a list |
| | ▪ clear a list | |
| | ▪ delete a list | |

1. Name three things you learned about *Statistics* in Chapter 1.
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 -
 -
2. The authors claim that this book is very different from a typical mathematics textbook. Would you agree or disagree, based on what you read in Chapter 1? Explain.
3. According to the authors, what are the “three simple steps to doing *Statistics* right?”

Chapter 2: Data

What are data?

In order to determine the context of data, consider the “W’s”

- Who –
- What (and in what units) –
- When –
- Where –
- Why –
- How –

There are two major ways to treat data:

- A _____ is used to answer questions about how cases fall into categories. A categorical variable may be comprised of word labels, or it may use numbers as labels.

Examples:

- A _____ is used to answer questions about the quantity of what is being measured. A quantitative variable is comprised of numeric values.

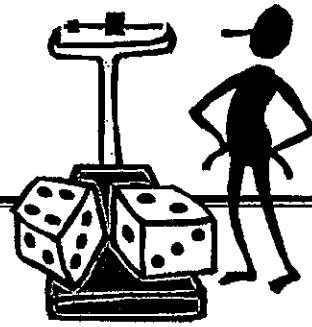
Examples:

What is a statistic?

Are the numbers 17, 21, 44, 76 data?

Data must have _____ to be meaningful. The numbers listed above could be test scores, ages of a group of golfers, or the uniform numbers of the starting backfield on the football team. Without _____ data cannot be interpreted.

Chapter 3: Displaying and Describing Categorical Data

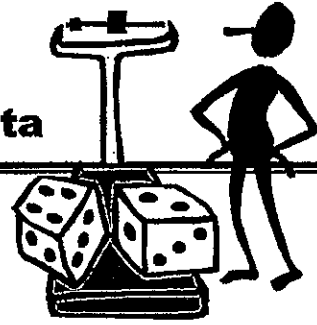


Key Vocabulary:

- frequency table
- relative frequency table
- distribution
- bar chart
- pie chart
- contingency table
- marginal distribution
- conditional distribution
- independent
- segmented bar chart
- Simpson's Paradox

1. According to the authors, what are the three rules of data analysis?
2. Explain the difference between a frequency table and a relative frequency table.
3. When is it appropriate to use a bar chart?
4. When is it appropriate to use a pie chart?
5. When is it appropriate to use a contingency table?
6. What does a marginal distribution show?
7. When is it appropriate to look at a conditional distribution?
8. What does it mean for two variables to be independent?
9. How does a segmented bar chart compare to a pie chart?
10. Explain what is meant by Simpson's Paradox.

Chapter 4: Displaying Quantitative Data



Key Vocabulary:

- | | | |
|--------------------------------|--------------|----------------------|
| ▪ distribution | ▪ spread | |
| ▪ histogram | ▪ mode | |
| ▪ relative frequency histogram | ▪ unimodal | |
| ▪ stem-and-leaf display | ▪ bimodal | ▪ skewed |
| ▪ dotplot | ▪ multimodal | ▪ outliers |
| ▪ shape | ▪ uniform | ▪ gaps |
| ▪ center | ▪ symmetric | ▪ time plot |
| | ▪ tail | ▪ re-expressing data |

Calculator Skills:

- display a histogram
- SortA (

1. What is meant by a *distribution*?
2. Explain the difference between a *histogram* and a *relative frequency histogram*.
3. In what ways are *histograms* similar to *stem-and-leaf displays*?
4. Name some advantages and disadvantages of *stem-and-leaf displays*.
5. When is it more appropriate to use a *histogram* rather than a *stem-and-leaf display*?
6. Name some advantages and disadvantages of *dotplots*.
7. When describing a *distribution*, what three things should you always mention?
8. What should you look for when describing the *shape* of a *distribution*?
9. In general, what is meant by the *center* of a *distribution*?