STAT 200

March 8, 2010

**Homework, Problems 24,18,32,12,18,30,24,30,10,20,26**

***In Eexercise 23-26, form a conclusion about statistical significance. Do not make any formal calculations. Either use results provided or make subjective judgments about the results.***

24. **Mendel’s Genetics Experiment** One of Gregor Mendel’s famous hybridization experiments with peas yielded 580 offsprings with 152 of those peas (or 26%) having yellow pods. According to Mendel’s theory, 25% of the offspring peas should have yellow pods. Do the results of the experiment differ from Mendel’s claimed rate of 25% by an amount that is statistically significant?

***In Exercise 13-20, determine whether the given values are from a discrete continuous data set.***

18. **Blood Pressure** When a man is randomly selected and measure for blood pressure the systolic blood pressure is found to be 61 mm Hg.

***In Exercise 29-32, identify the (a) sample and (b) population. Also, determine whether the sample is likely to be representative of the population***.

32. **AOL Survey** American Online asked subscribers to respond to this question: “Which slogan do you hate the most?” Responders were given several slogans used to promote car sales, and Volkswagon’s slogan received 55% of the 33,160 responses. The Volkswagon slogan was “Relieves gas pains.”

***In Exercise 9-20, use critical thinking to address the key issue.***

12. **Census Data** After the last national census was conducted, the *Poughkeepsie Journal* ran this front-page headline: “281,421,906 in America.” What is wrong with this headline?

18. **Bad Question** The author surveyed students with this request: “Enter your heigh in inches. “Identify two major problems with this request.

30. **What’s Wrong with This Picture**? The *Newport Chronicle* ran a survey by asking readers to call in their response to this question: “Do you support the development of atomic weapons that could kill millions of innocent people?” It was reported that 20 readers responded and 87% said “no” while 13% said “yes.” Identify found major flaws in this survey.

24. **Weights of Discarded Paper** As part of the Garbage Project at the University of Arizona, the discarded garbage for 62 households was analyzed. Refer to the 62 weights of discarded paper from Data Set 22 in Appendix B and construct a frequency distribution. Bein with a lower class limit of 1.00 lb, and use a class width of 4.00 lb. Do the weights of discarded paper appear to have a normal distribution? Compare the weights of discarded paper to the weights of discarded metal by referring to the frequency distribution given in Exercise 7

30. **Train Derailment** An analysis of 50 train derailment incidents identified the main causes listed below, where T denotes bad track, E denotes faulty equipment, H denotes human error, and O denotes other causes (based on data from the Federal Railroad Administration). Construct a table summarizing the frequency distribution of these causes of train derailments.

T T T E E H H H H H O O H H H E E T T T E T H O T

T T T T T T H T T H E E T T E E T T T H T T O O O

10. **Radiation in Baby Teeth** Use the frequency distribution from Exercise 18 in Section 2-2 to construct a histogram.

Exercise 18. **Radiation in Baby Teeth** Listed below are amounts of strontium-90 (in millibecquerels) in a simple random sample of baby teeth obtained from Pennsylvania residents born after 1979 (based on data from “An unexpected Rise in Strontium-90 in U.S. Deciduous Teeth in the 1990s,” by Mangano, et. Al., Science of the Total Environment). Construct a frequency distribution with eight classes. Begin with a lower class limit of 110, and use a class width of 10. Cite a reason why such data are important. ***(Do not need to do this problem, this is to do Exercise 10 above)*.**

**155 142 149 130 151 163 151 142 156 133 138 161 128 144 172 137 151 166 147 163**

**145 116 136 158 114 165 169 145 150 150 150 158 151 145 152 140 170 129 188 156**

20. **Weights of Quarters** Use the frequency distribution from Exercise 28 in section 2-2 to construct a histogram. Compare this histogram to the histogram from Exercise 19.

Exercise 28. Weight of Quarters Refer to Data Set 20 in Appendix B and use the weights (grams) of the post- 1964 quarters. Construct a frequency distribution. Begin with a lower class limit of 5.5000 g, and use a class width of 0.0500 g. Compare the frequency distribution to the result from Exercise 27***. (Use the solution below to solve Exercise 20 above)***

Weight (g) Frequency

5.5000-5.5499 3
5.5500-5.5999 9
5.6000-5.6499 11
5.6500-5.6999 9
5.7000-5.7499 7
5.7500-5.7999 1
 40

Exercise 19. Weights of Quarters Use the frequency distribution from Exercise 27 in Section 2-2 to construct a histogram. ***(This is the answer (below) for Exercise 19 to solve Exercise 20 above)***

weight (g) frequency

6.0000-6.0499 2
6.0500-6.0999 3
6.1000-6.1499 10
6.1500-6.1999 8
6.2000-6.2499 6
6.2500-6.2999 7
6.3000-6.3499 3
6.3500-6.3999 1
 40

26. **Genders of** Students The following table lists (in thousands) the numbers of male and female higher education students for different years. (Projects are from the U.S. National Center of Education Statistics.) Construct a multiple bar graph of the data, then describe any trends.

**Year**  2004 2005 2006 2007 2008 2009 2010

|  |
| --- |
| **Males** 7268 7356 7461 7568 7695 7802 7872 |

 **Female**s 9826 9995 10,203 10,407 10,655 10,838 10,944