

## Stat 145 Homework Solutions: Chapter 7

### Problem 7.1

This is an observational study as no attempt was made to influence the response. The explanatory variable is cell phone usage and the response variable is whether or not the person had brain cancer.

### Problem 7.3

A child who watches a lot of television probably is more likely to spend less time doing homework, playing sports, or having social interactions with other children. He or she may also have less contact with or guidance from his or her parents.

### Problem 7.7

- (a) The sample size was  $14,793 + 1778 + 2566 + 988 = 20,125$  respondents.
- (b) This is a voluntary response sample. Only the opinions of those who visit this web site and feel strongly about the issue are collected.

### Problem 7.9

Label the managers 01 to 28 alphabetically. Enter Table B at line 139 and read two-digit groupings:

55, 58, 89, 94, 04, 70, 70, 84, 10 ...

Continuing in this manner, the following managers will be selected:

Bonds (04), Fleming (10), Liao (17), Naber (19), Goel (12), Gomez (13)

### Problem 7.11

Label the students 01 to 30 alphabetically and use Table B to select an SRS of four students (answers will vary). Then label the faculty members 01 to 10 alphabetically and use Table B to select an SRS of two students (answers will vary). Combine the two SRSs to form the full sample.

### Problem 7.13

The period from July 1 to August 31 most likely had the higher rate of "ring-no-answer" because more families are likely to be on vacation during this time. In this example, a high rate of nonresponse may mean that those who are more affluent are underrepresented in the sample.

Problem 7.15

Larger samples provide more accurate results.

Problem 7.19

The population is all college students. The sample is the 104 students at the researcher's college who responded. The rate of nonresponse is  $\frac{146}{250} = .584$ , or 58.4%.

Problem 7.23

Those who feel most strongly are most likely to respond to these types of polls. In this example, women who are unhappy with their treatment by men make up a large part of the response. The 72% figure is much higher than the truth about the population of all adult women.

Problem 7.26

Label the class members 01 to 32 alphabetically. Enter Table B at line 117 and read two-digit groupings:

38, 16, 79, 85, 32 ...

Continuing in this manner, the following class members will be selected:

Husain (16), Zhao (32), Kim (18), Calloway (06), Percival (23), Molina (19),  
Batista (03), Puri (25), Bell (04), Arroyo (02)

Problem 7.33

(a) False. If this statement were true, then it would be possible to know whether the 40th digit was a zero by looking at the first 39 digits.

(b) True. All 100 two-digits pairs 00-99 are equally likely.

(c) False. The four-digit sequence 0000 is just as likely to occur as any other four-digit sequence (e.g., 1234, 0143, 5690, etc.).