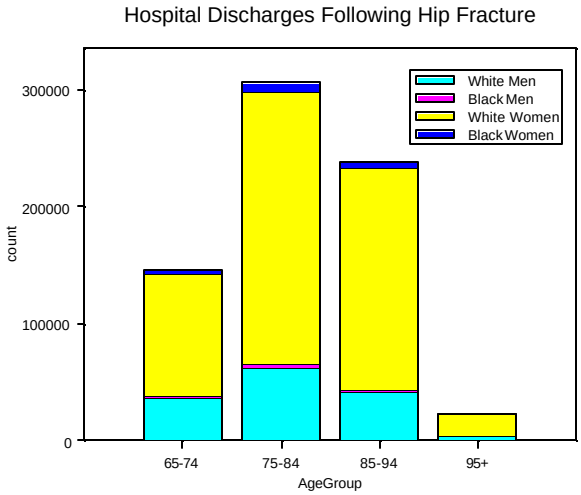
STA102 Spring 2002
Chapter 2 Solutions to Suggested Even Problems

Exercise 2
Nominal data consist of labels or names without any natural ordering. Nominal data may be considered the least complex type of data. Ordinal data are like nominal data but with some natural order. Both types are categorical data.

Exercise 4
When comparing two or more groups that are categorized in the same way, we need to adjust for the total number of observations in each group. Relative frequency is usually used to make such comparisons rather than (absolute) frequency.

Exercise 6
The k^{th} percentile (k between 0 and 100) of a data set is the value such that k% of the data falls at or below the value and (100-k)% of the data fall at or above the value.

Exercise 12
a. A stacked bar chart showing the numbers of hospital discharges by age group is shown below



b. The number of fractures is greatest for the 75-84 year age group. The 95+ year age group has the smallest number of hip fractures. Note that the total population size is decreasing as age increases, however; the smaller population base could account for the decreasing number of fractures. Rather than the absolute number of

hip fractures, we would prefer to see the relative frequency of fractures in each age group.

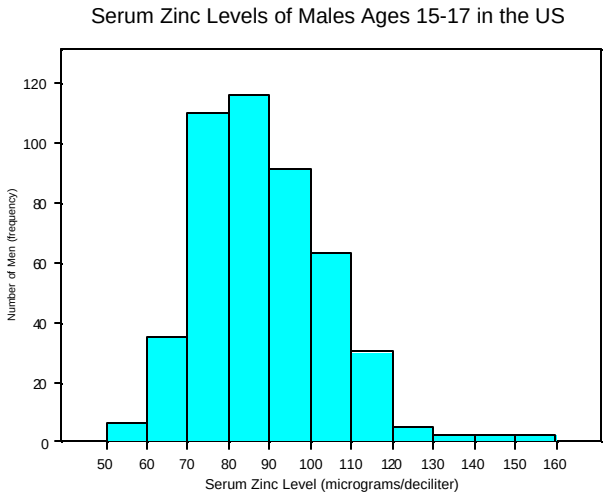
c. It appears that females have more hip fractures than males, especially white females. However, this could again be an artifact of the population size; there are more females alive after the age of 65 than there are males

Exercise 16

a. The table of relative frequencies appears below. The serum zinc levels range from 50 to 159 (according to table; actually maximum is 153); however, most of the values lie between 70 and 109 μg/dl. The intervals 70-79 and 80-89 contain the greatest numbers of observations.

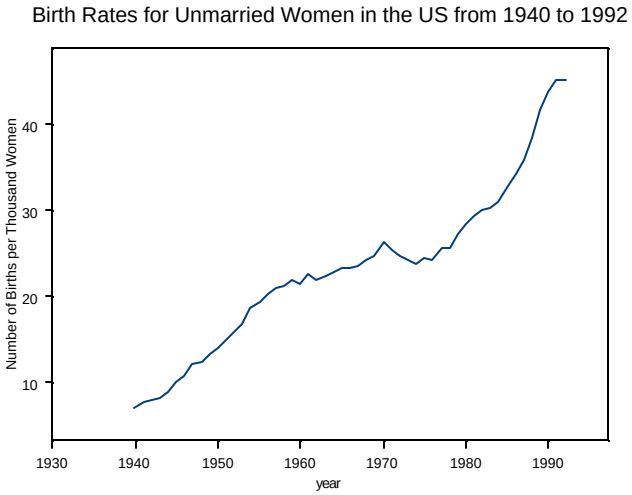
Serum Zinc Level (micrograms/deciliter)	Frequency	Relative Frequency (%)
50-100	6	1.3
60-69	35	7.6
70-79	110	23.8
80-89	116	25.1
90-99	91	19.7
100-109	63	13.6
110-119	30	6.5
120-129	5	1.1
130-139	2	0.4
140-149	2	0.4
150-159	2	0.4
Total	462	100.0

b. A histogram of the data appears below.



c. The histogram is unimodal and slightly skewed to the right.

Exercise 20
a. The line graph is shown below.



b. Based on the graph, the birth rate for unmarried women has been increasing steadily since 1940. The rate of increase slowed somewhat in the 1960s and 1970s and then increased again in the 1980s.