**Pre-Activity Test**

*Note:* The purpose of this practice is to refresh your knowledge in graphing data using box-and-whisker plots, bar graphs, and Pareto charts. The computation of mean, trimmed mean, standard deviation, coefficient of variation and five-number summary is also reviewed. Remember to answer in terms of the problem!

1. A food industry group asked 3,368 people to guess the number of calories in each of several common foods. The table below provides an average of their guesses and the correct number of calories.

|  |  |  |
| --- | --- | --- |
| **Food** | **Guessed Calories** | **Actual Calories** |
| 8 oz. whole milk | 196 | 159 |
| 5 oz. spaghetti with tomato sauce | 394 | 163 |
| 5 oz. macaroni with cheese | 350 | 269 |
| 1 slice wheat bread | 117 | 61 |
| 1 slice white bread | 136 | 76 |
| 2 oz. candy bar | 364 | 260 |
| 1 saltine cracker | 74 | 12 |
| 1 medium-size apple | 107 | 80 |
| 1 medium-size potato | 160 | 88 |
| 1 cream-filled snack cake | 419 | 160 |

1. Make a clustered bar graph using the data in the table. Was the estimation over or under?
2. Use a Pareto chart to determine the two foods with the highest calories content.
3. Three groups of *AP Statistics* students were asked how many minutes they studied on a typical weeknight. The responses of random samples of 30 female and 30 male students are in the table.

|  |  |
| --- | --- |
| **Girls** | **Boys** |
| 180 | 120 | 180 | 360 | 240 | 90 | 120 | 30 | 90 | 200 |
| 120 | 180 | 120 | 240 | 170 | 90 | 45 | 30 | 120 | 75 |
| 150 | 120 | 180 | 180 | 150 | 150 | 120 | 60 | 240 | 300 |
| 200 | 150 | 180 | 150 | 180 | 240 | 60 | 120 | 60 | 30 |
| 120 | 60 | 120 | 180 | 180 | 30 | 230 | 120 | 95 | 150 |
| 90 | 240 | 180 | 115 | 120 | 0 | 200 | 120 | 120 | 180 |

For each of the above data sets, compute:

1. The sample mean
2. The standard deviation, and the coefficient of variation
3. The five-number summary
4. The 10% trimmed mean

Using modified box-and-whisker plots, compare the above data. Include the mean values on your graphs. Draw conclusions about the study habits of the *AP Statistics* students.