

# Math 160/263 Minitab Assignment # 8 - Unix Version

## Chapter 4 - Sampling Distributions

1. A snack-food company uses a machine to package bags of pretzels. The bags are supposed to contain 454 grams (g). In fact, the contents vary according to a normal distribution with mean  $\mu = 454$  g and standard deviation 7.5 g.
  - (a) Use the **CDF** command with the **NORMAl** subcommand to find the probability that an individual bag contains less than 445 g.
  - (b) Use the **LET** command to find the mean and standard deviation for the contents of the bags in a carton of eight. Use the **CDF** command to find the probability that the mean contents of the bags in a carton of eight is less than 445 g.
2. A survey by the National Fisheries Institute showed that 25% of adults consume seafood two or three times a week. If 100 adults are selected at random, then the count of respondents that consume seafood two or three times a week has a binomial distribution with parameters  $n = 100$  and  $p = 0.25$ .
  - (a) Use the commands given below to simulate 100 observations of this random variable in each of 40 columns of the worksheet.

```
MTB > RANDOM 100 c1-c40;
SUBC> BINOMIAL 100 0.25.
```

- (b) Use the commands given below to compute the row means for the first 10 columns, the first 20 columns, and all 40 columns.

```
MTB > RMEAN c1-c10 c41
MTB > RMEAN c1-c20 c42
MTB > RMEAN c1-c40 c43
```

- (c) Create graphical and numerical descriptions of the results in columns 1, 41, 42, and 43.
- (d) Briefly describe how the shapes of the distributions compare with one another, how the means compare with one another, and how the standard deviations compare with one another.