## Seminar 12

1. If a person is randomly selected, find the probability that his or her birthday is October 18,
   a. if leap year is ignored;
   b. if assume leap year occurs every four years.

2. In a recent election, there were 25,569,000 citizens in the 18-24 age bracket. Of these, 9,230,000 actually voted. Find the probability that a person randomly selected from this group did vote in that election. Which probability approach is used to obtain the probability?

3. The stem-and-leaf display summarizes the time (in hours) managers spend in one week on paperwork. Use this sample to estimate the probability that a randomly selected manager spends more than 20 hours per week on paperwork? Which probability approach is used to obtain the probability?

| | |
|---|---|
| 0 | 00 |
| 1 | 0578 |
| 2 | 00113449 |
| 3 | 347 |
| 4 | 445 |

n = 20

4. A student has reasoned that because we know nothing about the likelihood of a particular stock increasing in price, either it will or it won't, so that P(increase) = 0.5. Is this reasoning correct? Explain.

5. A couple plans to have 2 children.
   a. List the different outcomes according to the sex of each child. Assume that these outcomes are equally likely.
   b. Find the probability of getting 2 girls.
   c. Find the probability of getting exactly 1 child of each sex.
   d. Which probability approach is used for getting these probabilities?

6. The office manager of an insurance company has the following data on the functioning of the copiers in the office:

| Copier | Days Functioning | Days out of service |
|---|---|---|
| 1 | 209 | 51 |
| 2 | 217 | 43 |
| 3 | 258 | 2 |
| 4 | 229 | 31 |
| 5 | 247 | 13 |

What is the probability of a copier's being out of service, based on this data?

7. Classify the following probability estimates as to their type (classical, relative frequency, or subjective):

   a. The probability of scoring on a penalty shot in ice hockey is 0.47.
   b. The probability that the current mayor will resign is 0.85.
   c. The probability of rolling 2 sixes with 2 dice is 1/36.
   d. The probability that you will go to Europe this year is 0.14