Introduction to Quantitative Analysis & Statistics

Chapter 5 – Supplementary Exercises

*(Practice examples like these to help prepare yourself for problems on your final exam)*

55. The budgeting process for a mid-western college resulted in expense forecasts for the coming year (in $ millions) of $9, $10, $11, $12, and $13. Because the actual expenses are unknown, the following respective probabilities are assigned: .3, .2, .25, .05, and .2.

1. Show the probability distribution for the expense forecast.
2. What is the expected value of the expense forecast for the coming year?
3. What is the variance of the expense forecast for the coming year?

d. If income projections for the year are estimated at $12 million, comment on the financial position of the college.

56. A survey showed that the average commuter spends about 26 minutes on a one-way doorto-door trip from home to work. In addition, 5% of commuters reported a one-way commute of more than one hour (Bureau of Transportation Statistics website, January 12, 2004).

a. If 20 commuters are surveyed on a particular day, what is the probability that three will report a one-way commute of more than one hour?

b. If 20 commuters are surveyed on a particular day, what is the probability that none will report a one-way commute of more than one hour?

c. If a company has 2000 employees, what is the expected number of employees that have a one-way commute of more than one hour?

d. If a company has 2000 employees, what is the variance and standard deviation of the number of employees that have a one-way commute of more than one hour?

66. Through the week ending September 16, 2001, Tiger Woods was the leading money winner on the PGA Tour, with total earnings of $5,517,777. Of the top 10 money winners, seven players used a Titleist brand golf ball (PGA Tour website). Suppose that we randomly select two of the top 10 money winners.

a. What is the probability that exactly one uses a Titleist golf ball?

b. What is the probability that both use Titleist golf balls?

c. What is the probability that neither uses a Titleist golf ball