# ASSIGNMENT 3

4.107

4.108

4.113

4.114

**4.107 Is the calcium intake adequate?**

In the population of young children eligible to participate in a study of whether or not their calcium intake is adequate, 52% are 5 to 10 years of age and 48% are 11 to 13 years of age. For those who are 5 to 10 years of age, 18% have inadequate calcium intake. For those who are 11 to 13 years of age, 57% have inadequate calcium intake.19

(a) Use letters to define the events of interest in this exercise.

(b) Convert the percents given to probabilities of the events you have defined.

(c) Use a tree diagram to calculate the probability that a randomly selected child from this population has an inadequate intake of calcium.

**4.108 Use Bayes’s rule.**

Refer to the previous exercise. Use Bayes’s rule to find the probability that a child from this population who has inadequate intake is 11 to 13 years old.

**4.113 Lying to a teacher.**

Suppose that 48% of high school students would admit to lying at least once to a teacher during the past year and that 25% of students are male and would admit to lying at least once to a teacher during the past year.20 Assume that 50% of the students are male. What is the probability that a randomly selected student is either male or would admit to lying to a teacher, during the past year? Be sure to show your work and indicate all the rules that you use to find your answer.

**4.114 Lying to a teacher.**

Refer to the previous exercise. Suppose that you select a student from the subpopulation of those who would admit to lying to a teacher during the past year. What is the probability that the student is female?

Be sure to show your work and indicate all the rules that you use to find your answer.