1. In the mid-1970s, the average diameter of timber felled in the Pacific Northwest of the United States was 14 inches. However by the mid-1980s this average had declined to 7 inches (Douglis, 1993). Suppose the standard deviation of the diameter of these trees in the mid-1980s was 2 inches. If 52 trees felled in the Pacific Northwest of the United States in the mid 1980s were sampled what is the probability that the average diameter of these trees would exceed 7.5 inches?
2. The mean age at first marriage for U.S. women is 26 years. (*The World's Women 2005: Progress in Statistics*, 2005). Suppose this has a standard deviation of 3 years. If 35 U.S. women are sampled what is the probability that their average at first marriage will be more than 25 years?
3. Contrary to popular belief Seattle is not the rainiest city in the U.S. In fact, Seattle only ranks 44th among US cities for rainfall with an average yearly rainfall of 36.2 inches (See Seattle Walking Tours & Events). Suppose the standard deviation of 5.3 inches. What is the probability that the total rainfall over a 35-year period will exceed 1300 inches?
4. A study says that people living in urban areas of the Pacific Northwest eat out at restaurants an average of 3.3 times per week with a standard deviation of 1.3 times (Alkhatib, 2007). If 35 of these people are sampled what is the probability that they eat out a total of at least 110 times on a given week.