

1. A recent study of the hourly wages of maintenance crew members for major airlines showed that the mean hourly salary was \$20.50, with a standard deviation of \$3.50. Assume the distribution of hourly wages follows the normal probability distribution. If we select a crew member at random, what is the probability the crew member earns: a) between \$20.50 and \$24.00 per hour? b) more than \$24.00 per hour? c) less than \$19.00 per hour?
2. The temperature of coffee sold at the Coffee Bean Cafe follows the normal probability distribution with a mean of 150 degrees. The standard deviation of this distribution is 5 degrees. What is the probability that the coffee temperature is: a) between 150 degrees and 154 degrees? b) more than 164 degrees? c) between 146 degrees and 156 degrees? d) more than 156 degrees but less than 162 degrees?
3. WNAE, an all-news AM station, finds that the distribution of the lengths of time listeners are tuned to the station follows the normal distribution. The mean of the distribution is 15.0 minutes and the standard deviation is 3.5 minutes. What is the probability that a particular listener will tune in: a) more than 20 minutes? b) for 20 minutes or less? c) between 10 and 12 minutes?
4. The number of viewers of American Idol has a mean of 29 million with a standard deviation of 5 million. Assume this distribution follows a normal distribution. What is the probability that next week's show will: a) have between 30 and 34 million viewers? b) have at least 23 million viewers? c) exceed 40 million viewers?
5. The SAT Reasoning Test is perhaps the most widely used standardized test for college admissions in the United States. Scores are based on a normal distribution with a mean of 1500 and a standard deviation of 300. Clinton College would like to offer an honors scholarship to students who score in the top ten percent of this test. What is the minimum score that qualifies for the scholarship?
6. For the most recent year available, the mean annual cost to attend a private university in the United States was \$26,889. Assume the distribution of annual costs follows the normal probability distribution and the standard deviation is \$4,500. Ninety-five percent of all students at private universities pay less than what amount?