11. Oscar-Winning Actresses Data Set 11 in Appendix B lists ages of actresses when they won Oscars, and the summary statistics are $n = 82$, $\bar{x} = 35.9$ years, and $s = 11.1$ years. Use a 0.01 significance level to test the claim that the mean age of actresses when they win Oscars is 33 years.

12. Discarded Plastic The weights (lb) of discarded plastic from a sample of households is listed in Data Set 23 in Appendix B, and the summary statistics are $n = 62$, $\bar{x} = 1.911$ lb, and $s = 1.065$ lb. Use a 0.05 significance level to test the claim that the mean weight of discarded plastic from the population of households is greater than 1.800 lb.

13. M&M Weights A simple random sample of the weights of 19 green M&Ms has a mean of 0.8635 g and a standard deviation of 0.0570 g (as in Data Set 20 in Appendix B). Use a 0.05 significance level to test the claim that the mean weight of all green M&Ms is equal to 0.8535 g, which is the mean weight required so that M&Ms have the weight printed on the package label. Do green M&Ms appear to have weights consistent with the package label?

14. Human Body Temperature Data Set 3 in Appendix B includes a sample of 106 body temperatures with a mean of 98.20°F and a standard deviation of 0.62°F. Use a 0.05 significance level to test the claim that the mean body temperature of the population is equal to 98.6°F, as is commonly believed. Is there sufficient evidence to conclude that the common belief is wrong?

15. Is the Diet Practical? When 40 people used the Weight Watchers diet for one year, their mean weight loss was 3.0 lb and the standard deviation was 4.9 lb (based on data from "Comparison of the Atkins, Ornish, Weight Watchers, and Zone Diets for Weight Loss and Heart Disease Reduction," by Dansinger, et al., *Journal of the American Medical Association,* Vol. 293, No. 1). Use a 0.01 significance level to test the claim that the mean weight loss is greater than 0. Based on these results, does the diet appear to be effective? Does the diet appear to have practical significance?

16. Flight Delays Data Set 15 in Appendix B lists 48 different departure delay times (minutes) for American Airlines flights from New York (JFK) to Los Angeles. Negative departure delay times correspond to flights that departed early. The mean of the 48 times is 10.5 min and the standard deviation is 30.8 min. Use a 0.01 significance level to test the claim that the mean departure delay time for all such flights is less than 12.0 min. Is a flight operations manager justified in reporting that the mean departure time is less than 12.0 min?

17. Garlic for Reducing Cholesterol In a test of the effectiveness of garlic for lowering cholesterol, 49 subjects were treated with raw garlic. Cholesterol levels were measured before and after the treatment. The changes (before minus after) in their levels of LDL cholesterol (in mg/dL) have a mean of 0.4 and a standard deviation of 21.0 (based on data from "Effect of Raw Garlic vs Commercial Garlic Supplements on Plasma Lipid Concentrations in Adults with Moderate Hypercholesterolemia," by Gardner et al., *Archives of Internal Medicine,* Vol. 167). Test the claim that with garlic treatment, the mean change in LDL cholesterol is greater than 0. What do the results suggest about the effectiveness of the garlic treatment?

18. Insomnia Treatment A clinical trial was conducted to test the effectiveness of the drug Zopiclone for treating insomnia in older subjects. Before treatment with Zopiclone, 16 subjects had a mean wake time of 102.8 min. After treatment with Zopiclone, the 16 subjects had a mean wake time of 98.9 min and a standard deviation of 42.3 min (based on data from "Cognitive Behavioral Therapy vs Zopiclone for Treatment of Chronic Primary Insomnia in Older Adults," by Siversten, et al., *Journal of the American Medical Association,* Vol. 295, No. 24). Assume that the 16 sample values appear to be from a normally distributed population, and test the claim that after treatment with Zopiclone, subjects have a mean wake time of less than 102.8 min. Does Zopiclone appear to be effective?

19. Years in College Listed below are the numbers of years it took for a random sample of college students to earn bachelor's degrees (based on data from the National Center for Education Statistics). Use a 0.01 significance level to test the claim that for all college students,