27. Presidential Longevity Refer to Data Set 12 in Appendix B and use the numbers of years that U.S. presidents have lived after their first inauguration.

28. IQ Scores Refer to Data Set 6 in Appendix B and use the listed IQ scores.

Estimating Standard Deviation with the Range Rule of Thumb. *In Exercises 29–32, refer to the data in the indicated exercise. After finding the range of the data, use the range rule of thumb to estimate the value of the standard deviation. Compare the result to the standard deviation computed with all of the data.*

29. Exercise 25   **30.** Exercise 26

31. Exercise 27   **32.** Exercise 28

Identifying Unusual Values with the Range Rule of Thumb. *In Exercises 33–36, use the range rule of thumb to determine whether a value is* **unusual.**

33. Pulse Rates of Females Based on Data Set 1 in Appendix B, females have pulse rates with a mean of 77.5 beats per minute and a standard deviation of 11.6 beats per minute. Is it unusual for a female to have a pulse rate of 99 beats per minute? (All of these pulse rates are measured at rest.) Explain.

34. Pulse Rates of Males Based on Data Set 1 in Appendix B, males have pulse rates with a mean of 67.3 beats per minute and a standard deviation of 10.3 beats per minute. Is it unusual for a male to have a pulse rate of 45 beats per minute? (All of these pulse rates are measured at rest.) Explain.

35. Volumes of Coke Based on Data Set 19 in Appendix B, cans of regular Coke have volumes with a mean of 12.19 oz and a standard deviation of 0.11 oz. Is it unusual for a can to contain 11.9 oz of Coke? Explain.

36. Weights of Pepsi Based on Data Set 19 in Appendix B, cans of regular Pepsi have weights with a mean of 0.82410 lb and a standard deviation of 0.00570 lb. Is it unusual for a can to contain 0.8133 lb of Pepsi? Explain.

Finding Standard Deviation from a Frequency Distribution. *In Exercises 37–40, find the standard deviation of sample data summarized in a frequency distribution table by using the formula below, where x represents the class midpoint, f represents the class frequency, and n represents the total number of sample values. Also, compare the computed standard deviations to these standard deviations obtained by using Formula 3-4 with the original list of data values: (Exercise 37) 11.1 years; (Exercise 38) 9.0 years; (Exercise 39) 13.4; (Exercise 40) 9.7 years.*

$$s = \sqrt{\frac{n[\Sigma (f \cdot x^2)] - [\Sigma (f \cdot x)]^2}{n(n-1)}}$$ Standard deviation for frequency distribution

37.

Age of Best Actress When Oscar Was Won	Frequency
20–29	27
30–39	34
40–49	13
50–59	2
60–69	4
70–79	1
80–89	1

38.

Age of Best Actor When Oscar Was Won	Frequency
20–29	1
30–39	26
40–49	35
50–59	13
60–69	6
70–79	1