9. Precipitation and High Temperatures The normal daily high temperatures (in degrees Fahrenheit) in January for 10 selected cities are as follows.

50, 37, 29, 54, 30, 61, 47, 38, 34, 61

The normal monthly precipitation (in inches) for these same 10 cities is listed here.

4.8, 2.6, 1.5, 1.8, 1.8, 3.3, 5.1, 1.1, 1.8, 2.5

Which set is more variable?

Source: *New York Times Almanac.*

10. Size of U.S. States The total surface area (in square miles) for each of six selected Eastern states is listed here.

28,995	PA	37,534	FL
31,361	NY	27,087	VA
20,966	ME	37,741	GA

The total surface area for each of six selected Western states is listed (in square miles).

72,964	AZ	70,763	NV
101,510	CA	62,161	OR
66,625	CO	54,339	UT

Which set is more variable?

Source: *New York Times Almanac.*

11. Stories in the Tallest Buildings The number of stories in the 13 tallest buildings for two different cities is listed below. Which set of data is more variable?

Houston: 75, 71, 64, 56, 53, 55, 47, 55, 52, 50, 50, 50, 47

Pittsburgh: 64, 54, 40, 32, 46, 44, 42, 41, 40, 40, 34, 32, 30

Source: *World Almanac.*

12. Starting Teachers' Salaries Starting teacher salaries (in equivalent U.S. dollars) for upper secondary education in selected countries are listed below. Which set of data is more variable? (The U.S. average starting salary at this time was $29,641.)

Europe		Asia	
Sweden	$48,704	Korea	$26,852
Germany	41,441	Japan	23,493
Spain	32,679	India	18,247
Finland	32,136	Malaysia	13,647
Denmark	30,384	Philippines	9,857
Netherlands	29,326	Thailand	5,862
Scotland	27,789		

Source: *World Almanac.*

13. The average age of U.S. astronaut candidates in the past has been 34, but candidates have ranged in age from 26 to 46. Use the range rule of thumb to estimate the standard deviation of the applicants' ages.

Source: www.nasa.gov

14. Home Runs Find the range, variance, and standard deviation for the distances of the home runs for McGwire and Sosa, using the data in Exercise 18 in Section 2–1. Compare the ranges and standard deviations. Decide which is more variable or if the variability is about the same. (Use individual data.)

15. Use the data for Exercise 11 in Section 3–1. Find the range, variance, and standard deviation for each set of data. Which set of data is more variable?

16. Deficient Bridges in U.S. States The Federal Highway Administration reported the number of deficient bridges in each state. Find the range, variance, and standard deviation.

15,458	1,055	5,008	3,598	8,984
1,337	4,132	10,618	17,361	6,081
6,482	25,090	12,681	16,286	18,832
12,470	17,842	16,601	4,587	47,196
23,205	25,213	23,017	27,768	2,686
7,768	25,825	4,962	22,704	2,694
4,131	13,144	15,582	7,279	12,613
810	13,350	1,208	22,242	7,477
10,902	2,343	2,333	2,979	6,578
14,318	4,773	6,252	734	13,220

Source: *USA TODAY.*

17. Find the range, variance, and standard deviation for the data in Exercise 17 of Section 2–1.

For Exercises 18 through 27, find the variance and standard deviation.

18. Baseball Team Batting Averages Team batting averages for major league baseball in 2005 are represented below. Find the variance and standard deviation for each league. Compare the results.

NL		AL	
0.252–0.256	4	0.256–0.261	2
0.257–0.261	6	0.262–0.267	5
0.262–0.266	1	0.268–0.273	4
0.267–0.271	4	0.274–0.279	2
0.272–0.276	1	0.280–0.285	1

Source: *World Almanac.*

19. Cost per Load of Laundry Detergents The costs per load (in cents) of 35 laundry detergents tested by a consumer organization are shown here.

Class limits	Frequency
13–19	2
20–26	7
27–33	12
34–40	5
41–47	6
48–54	1
55–61	0
62–68	2