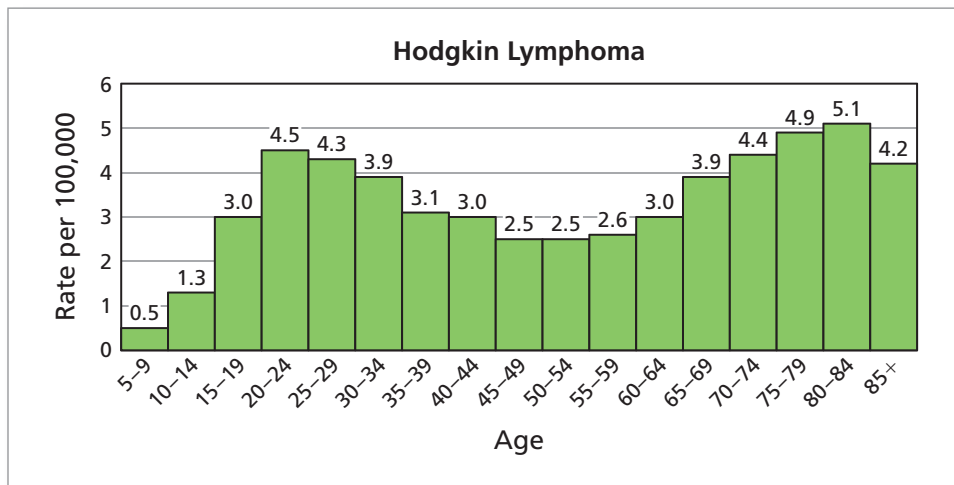


▶ Extending Concepts

Hodgkin Lymphoma The histogram shows the distribution of the ages at which people were diagnosed with Hodgkin lymphoma in a recent year. The table shows the population of the United States for each age group in the same year. In Exercises 17 and 18, use the histogram and the table.



Age	Population
5-9	20,313,416
10-14	20,103,526
15-19	21,628,099
20-24	21,322,253
25-29	21,441,834
30-34	19,515,671
35-39	20,846,774
40-44	21,394,190
45-49	22,802,020
50-54	21,431,624
55-59	18,541,377
60-64	15,081,608
65-69	11,332,535
70-74	8,806,448
75-79	7,385,163
80-84	5,825,975
85+	5,449,770

- The distribution of the ages in the graph is bimodal. How would you explain this?
- Use the rates and the populations to create a histogram that estimates the number of people diagnosed with Hodgkin lymphoma for each age group. Is the histogram bimodal? Explain.

Standard Deviation The formula for the sample standard deviation of a data set is given by

$$s = \sqrt{\frac{\sum x^2 - \frac{(\sum x)^2}{n}}{n - 1}}$$

where x represents each value in the data set and n is the number of values in the data set. The symbol Σ indicates a sum of values. So, $\sum x$ is the sum of the data values, and $\sum x^2$ is the sum of the squared data values. In Exercises 19 and 20, complete the table and then use the formula to find the sample standard deviation of the data set.

19.

x	x^2
16	
12	
23	
20	
18	
15	
18	
19	
$\sum x =$	$\sum x^2 =$

20.

x	x^2
33	
24	
27	
26	
30	
29	
26	
31	
34	
20	
$\sum x =$	$\sum x^2 =$