

EXAMPLE 2

The data set of the previous example is represented by the data frequency table

x	17	18	19	20	21	22	24
f	2	8	5	3	1	1	1

The data frequency table is especially convenient when data sets are large and the number of distinct values is not too large.

KEY TAKEAWAY

- Data sets can be presented either by listing all the elements or by giving a table of values and frequencies.

EXERCISES

1. List all the measurements for the data set represented by the following data frequency table.

x	31	32	33	34	35
f	1	5	6	4	2

2. List all the measurements for the data set represented by the following data frequency table.

x	97	98	99	100	101	102	103	105
f	7	5	3	4	2	2	1	1

3. Construct the data frequency table for the following data set.

22 25 22 27 24 23
26 24 22 24 26

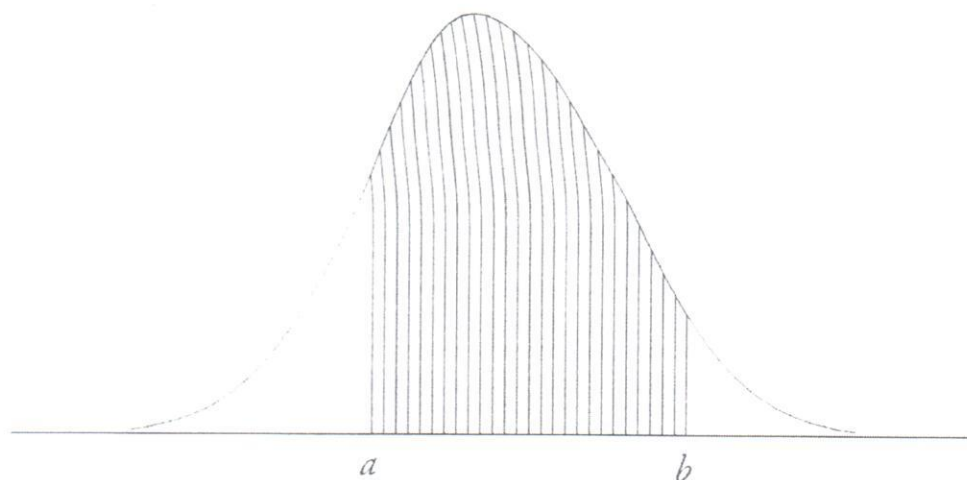
4. Construct the data frequency table for the following data set.

{1,5,2,3,5,1,4,4,4,3,2,5,1,3,2,
1,1,1,2}

3.

Do exercise 1 to 4

FIGURE 2.6 A Very Fine Relative Frequency Histogram

Shaded Area = Proportion of Data between a and b 

KEY TAKEAWAYS

- Graphical representations of large data sets provide a quick overview of the nature of the data.
- A population or a very large data set may be represented by a smooth curve. This curve is a very fine relative frequency histogram in which the exceedingly narrow vertical bars have been omitted.
- When a curve derived from a relative frequency histogram is used to describe a data set, the proportion of data with values between two numbers a and b is the area under the curve between a and b , as illustrated in Figure 2.6.

EXERCISES

Basic

1. Describe one difference between a frequency histogram and a relative frequency histogram.
2. Describe one advantage of a stem and leaf diagram over a frequency histogram.
3. Construct a stem and leaf diagram, a frequency histogram, and a relative frequency histogram for the following data set. For the histograms use classes 51–60, 61–70, and so on.

69 92 68 77 80

70 85 88 85 96

93 75 76 82 100

53 70 70 82 85

4. Construct a stem and leaf diagram, a frequency histogram, and a relative frequency histogram for the following data set. For the histograms use classes 6.0–6.9, 7.0–7.9, and so on.

8.5 8.2 7.0 7.0 4.9

6.5 8.2 7.6 1.5 9.3

9.6 8.5 8.8 8.5 8.7

8.0 7.7 2.9 9.2 6.9

5. A data set contains $n = 10$ observations. The values x and their frequencies f are summarized in the following data frequency table.

x	-1	0	1	2
f	3	4	2	1

Construct a frequency histogram and a relative frequency histogram for the data set.

Do exercise 1 to 5