NAME _____ DATE _____ PERIOD _____

Study Guide

The Frequency Distribution

A **frequency distribution** is a convenient system for organizing large amounts of data. A number of classes are determined, and all values in a class are tallied and grouped together. The most common way of displaying frequency distributions is by using a type of bar graph called a **histogram**.

Example **The number of passengers who boarded planes at 36 airports in the United States in one year are shown below.**

30,526	30,372	26,623	22,722	16,287	15,246	14,807	14,117	14,054
13,547	12,916	12,616	11,906	11,622	11,489	10,828	10,653	10,008
9703	9594	9463	9348	9125	8572	7300	6772	6549
6126	5907	5712	5287	4848	4832	4820	4750	4684

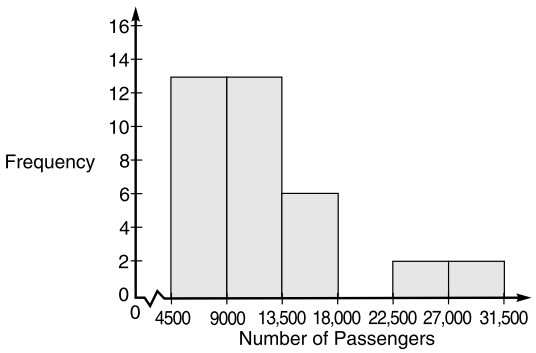
Source: U.S. Department of Transportation

a. Find the range of the data.
The range of the data is 30,526 − 4684 or 25,842.

b. Determine an appropriate class interval.
An appropriate class interval is 4500 passengers, beginning with 4500 and ending with 31,500. There will be six classes.

c. Name the class limits and the class marks.
The class limits are the upper and lower values in each interval, or 4500, 9000, 13,500, 18,000, 22,500, 27,000, and 31,500. The class marks are the averages of the class limits of each interval, or 6750, 11,250, 15,750, 20,250, 24,750, and 29,250.

d. Construct a frequency distribution of the data.
Use tallies to determine the number of passengers in each interval.

Number of Passengers	Tallies	Frequency
4500-9000	𝍸 𝍸 |||	13
9000-13,500	𝍸 𝍸 |||	13
13,500-18,000	𝍸 |	6
18,000-22,500		0
22,500-27,000	||	2
27,000-31,500	||	2

e. Draw a histogram of the data.
Label the horizontal axis with the class limits. The vertical axis should be labeled from 0 to a value that will allow for the greatest frequency. Draw the bars side by side so that the height of each bar corresponds to its interval's frequency.