

4. Identify the circumstances where the median instead of the mean is the preferred measure of central tendency.

10. For the set of scores shown in the following frequency distribution table:
- Sketch a histogram showing the distribution, and locate the median in your sketch.
  - Compute the mean for this set of scores.
  - Now, suppose that the score  $X = 5$  is changed to  $X = 45$ . How does this change affect the mean and the median? Use your sketch to find the new median, and then compute the new mean.

| $X$ | $f$ |
|-----|-----|
| 5   | 1   |
| 4   | 2   |
| 3   | 4   |
| 2   | 2   |
| 1   | 1   |

12. A population of  $N = 50$  scores has a mean of  $\mu = 26$ . What is  $\Sigma X$  for this population?

20. One sample of  $n = 3$  scores has a mean of  $\bar{X} = 4$ . A second sample of  $n = 7$  scores has a mean of  $\bar{X} = 10$ . If these two samples are combined, what value will be obtained for the mean of the combined sample?
21. For each of the following situations, identify the measure of central tendency (mean, median, mode) that would provide the best description of the "average" score:
- A researcher records each individual's favorite TV show for a sample of  $n = 50$  6-year-old children.
  - A researcher records how much weight is gained or lost for each client during a 6-week diet program.
  - A researcher studying motivation asks subjects to search through a newspaper for the word "discipline." The researcher records how long (in minutes) each subject works at the task before finding the word or giving up. For a sample of  $n = 20$  people, the mean time is  $X = 29$  minutes, the median is 17 minutes, and the mode is 15 minutes.

25. On a standardized reading achievement test, the nationwide average for seventh grade children is  $\mu = 7.0$ . A seventh grade teacher is interested in comparing class reading scores with the national average. The scores for the 16 students in this class are as follows:

8, 6, 5, 10, 5, 6, 8, 9  
7, 6, 9, 5, 14, 4, 7, 6

- Find the mean and the median reading scores for this class.
- If the mean is used to define the class average, how does this class compare with the national norm?
- If the median is used to define the class average, how does this class compare with the national norm?