

# Matching Statistics to Graphs

## SCENARIO

Sometimes it is reported that the average lawyer earns a lot of money; at the same time, the median income of lawyers is reported to be more modest. One year the average team in the National Football League made a sizable profit while the median team barely broke even. People often confuse the mean and the median of a distribution. How are these statistics related to the shape of the distribution?

## Question

Can we estimate the mean, median, and standard deviation of a distribution by looking at the histogram?

## Objective

The goal of this activity is to learn how summary statistics are related to graphs of data and how box plots are related to histograms. After completing this activity, you should be able to recognize when and how the mean of a distribution differs from the median. You should also be able to sketch an accurate box plot of a distribution after seeing the histogram, and vice versa.

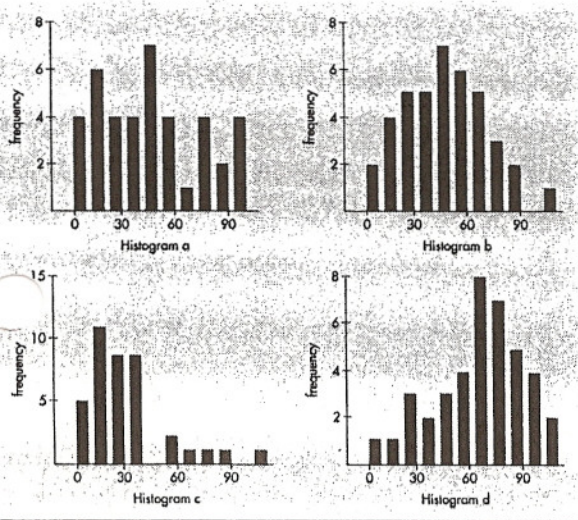
17

## MATCHING: STATISTICS TO GRAPHS 19

Variable	Mean	Median	Standard Deviation
1	50	50	10
2	50	50	15
3	53	50	10
4	53	50	20
5	47	50	10
6	50	50	5

Write the letter of the histogram next to the appropriate variable number in the above table, and explain how you made your choices.

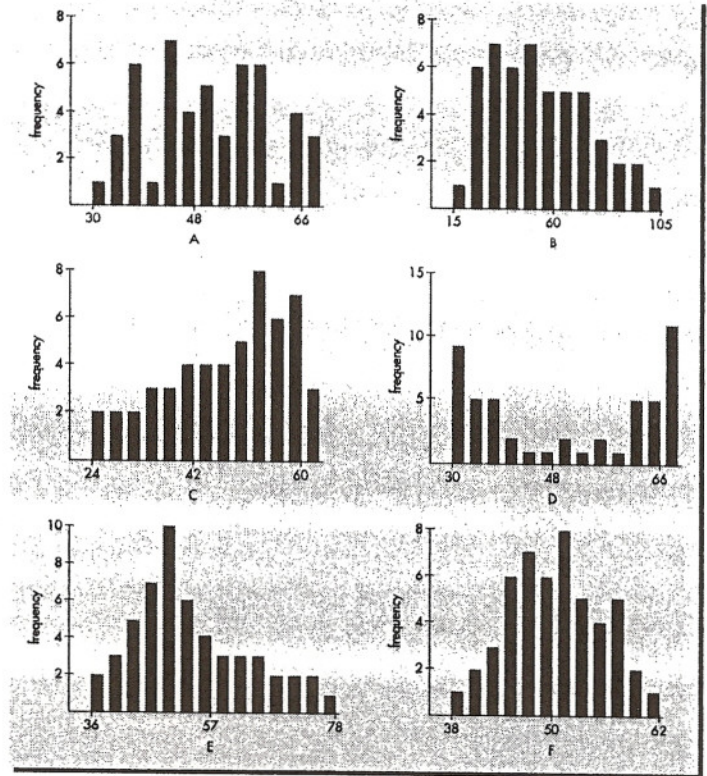
2. Consider the following group of histograms and box plots.



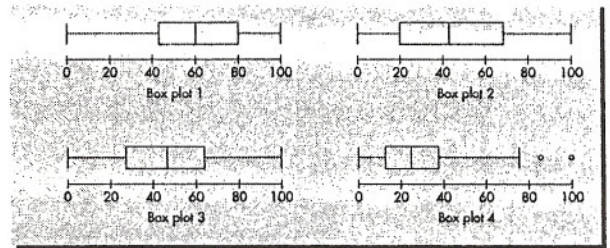
## 18 ACTIVITY-BASED STATISTICS GUIDE

### Activity

1. Consider the following group of histograms and summary statistics. Each of the variables (1-6) corresponds to one of the histograms.



## 20 ACTIVITY-BASED STATISTICS GUIDE



Each box plot corresponds to one of the histograms. Match the box plots to the histograms, and explain how you made your choices.