

policies to customers in a timely manner is critical to the profitability of this service to the bank. During a period of one month, a random sample of 27 approved policies was selected, and the following were the total processing times (stored in **Insurance**):

73 19 16 64 28 28 31 90 60 56 31 56 22 18
45 48 17 17 17 91 92 63 50 51 69 16 17

- Compute the mean, median, first quartile, and third quartile.
- Compute the range, interquartile range, variance, standard deviation, and coefficient of variation.
- Construct a boxplot. Are the data skewed? If so, how?
- What would you tell a customer who enters the bank to purchase this type of insurance policy and asks how long the approval process takes?

3.63 One of the major measures of the quality of service provided by an organization is the speed with which it responds to customer complaints. A large family-held department store selling furniture and flooring, including carpet, had undergone a major expansion in the past several years. In particular, the flooring department had expanded from 2 installation crews to an installation supervisor, a measurer, and 15 installation crews. The business objective of the company was to reduce the time between when the complaint is received and when it is resolved. During a recent year, the company got 50 complaints concerning carpet installation. The data from the 50 complaints, organized in **Furniture** represent the number of days between the receipt of a complaint and the resolution of the complaint:

54 5 35 137 31 27 152 2 123 81 74 27 11
19 126 110 110 29 61 35 94 31 26 5 12 4
165 32 29 28 29 26 25 1 14 13 13 10 5
27 4 52 30 22 36 26 20 23 33 68

- Compute the mean, median, first quartile, and third quartile.
- Compute the range, interquartile range, variance, standard deviation, and coefficient of variation.
- Construct a boxplot. Are the data skewed? If so, how?
- On the basis of the results of (a) through (c), if you had to tell the president of the company how long a customer should expect to wait to have a complaint resolved, what would you say? Explain.

3.64 A manufacturing company produces steel housings for electrical equipment. The main component part of the housing is a steel trough that is made of a 14-gauge steel coil. It is produced using a 250-ton progressive punch press with a wipe-down operation and two 90-degree forms placed in the flat steel to make the trough. The distance from one side of the form to the other is critical because of weatherproofing in outdoor applications. The company requires that the width of the trough be between 8.31 inches and 8.61 inches. Data are collected from a sample of 49 troughs and

stored in **Trough**, which contains the widths of the troughs in inches as shown below.

8.312 8.343 8.317 8.383 8.348 8.410 8.351 8.373 8.481 8.422
8.476 8.382 8.484 8.403 8.414 8.419 8.385 8.465 8.498 8.447
8.436 8.413 8.489 8.414 8.481 8.415 8.479 8.429 8.458 8.462
8.460 8.444 8.429 8.460 8.412 8.420 8.410 8.405 8.323 8.420
8.396 8.447 8.405 8.439 8.411 8.427 8.420 8.498 8.409

- Calculate the mean, median, range, and standard deviation for the width. Interpret these measures of central tendency and variability.
- List the five-number summary.
- Construct a boxplot and describe its shape.
- What can you conclude about the number of troughs that will meet the company's requirement of troughs being between 8.31 and 8.61 inches wide?

3.65 The manufacturing company in Problem 3.64 also produces electric insulators. If the insulators break when in use, a short circuit is likely to occur. To test the strength of the insulators, destructive testing is carried out to determine how much force is required to break the insulators. Force is measured by observing how many pounds must be applied to an insulator before it breaks. Data are collected from a sample of 30 insulators. The file **Force** contains the strengths as follows:

1,870 1,728 1,656 1,610 1,634 1,784 1,522 1,696 1,592 1,662
1,866 1,764 1,734 1,662 1,734 1,774 1,550 1,756 1,762 1,866
1,820 1,744 1,788 1,688 1,810 1,752 1,680 1,810 1,652 1,736

- Calculate the mean, median, range, and standard deviation for the force needed to break the insulator.
- Interpret the measures of central tendency and variability in (a).
- Construct a boxplot and describe its shape.
- What can you conclude about the strength of the insulators if the company requires a force measurement of at least 1,500 pounds before breakage?

3.66 The file **VeggieBurger** contains data on the calories and total fat (in grams per serving) for a sample of 12 veggie burgers.

Source: Data extracted from "Healthful Burgers That Taste Good," Consumer Reports, June 2008, p. 8.

- For each variable, compute the mean, median, first quartile, and third quartile.
- For each variable, compute the range, interquartile range, variance, standard deviation, and coefficient of variation.
- For each variable, construct a boxplot. Are the data skewed? If so, how?
- Compute the coefficient of correlation between calories and total fat.
- What conclusions can you reach concerning calories and total fat?