# Chapter 1

1.2 Descriptive techniques summarize data. Inferential techniques draw inferences about a population based on sample data.

1.3 a The population is the 25,000 registered voters.

b The sample is the 200 registered voters.

c The 48% figure is the statistic

1.4 a The population is the complete production run.

b The sample is comprised of the 1,000 chips.

c The parameter is the proportion of defective chips in the production run.

d The statistic is the proportion of defective chips in the sample.

e The 10% figure refers to the parameter.

f The 7.5% figure refers to the statistic.

g We can estimate the population proportion is 7.5%. Statistical inference methods will allow us to determine whether we have enough statistical evidence to reject the claim.as the sample proportion.

1.5 Draw a random sample from the population of graduates who have majored in your subject and a random sample of graduates of other majors and record their highest salary offers.

1.6 a Flip the coin (say 100 times) and record the number of heads (assuming that you are interested in the number of heads).

b The population is composed of the theoretical result of flipping the coin an infinite number of times and recording either “heads” or “tails”.

c The sample is comprised of the “heads” and “tails” in the sample.

d The parameter is the proportion of heads (again assuming that your interest is the number of heads rather than tails) in the population.

e The statistic is the proportion of heads (or tails depending on the choice made in part d).

f The sample statistic can be used to judge whether the coin is actually fair.

1.7 a We would conclude that the coin is not fair.

b We may conclude that there is some evidence that the coin is not fair.

 1.8 a The population is made up of the propane mileage of all the cars in the fleet.

b The parameter is the mean propane mileage of all the cars in the fleet.

c The sample is composed of the propane mileage of the 50 cars.

d The statistic is the mean propane mileage of the 50 cars in the sample.

e We can use the sample statistic to estimate the population parameter.