

Answers to Odd-Numbered Exercises

Chapter 1

Sections 1.1–1.2

- 1.1** (a) Descriptive. (b) Inferential. (c) Inferential. (d) Inferential. (e) Descriptive. (f) Descriptive.
- 1.3** (a) Open heart patients operated on in the last year. (b) 30 patients selected. (c) Length of stay.
- 1.5** Population: employees at Citigroup Inc. Sample: 35 employees selected.
- 1.7** Population: 10,000 families affected by the flood. Sample: 75 affected families selected.
- 1.9** (a) Population: all cheddar cheeses. Sample: 20 cheddar cheeses selected. (b) Probability question: What is the probability at least ten of the cheddar cheeses selected are aged less than two years? Statistics questions: Suppose 12 of the cheddar cheeses selected are aged less than two years. Does this suggest that the true proportion of all cheddars aged less than two years has decreased?
- 1.11** (a) Population: All Americans. (b) Sample: 1000 Americans selected. (c) Variable: Whether or not each believes sharks are dangerous.
- 1.13** Population: All shampoos. Sample: 20 shampoos selected. Variable: Amount of sulfur in each shampoo.
- 1.15** (a) Population: All Bounty paper towel rolls. (b) Sample: 35 rolls selected. (c) Variable: Amount of absorption.
- #### Section 1.3
- 1.17** (a) Observational study. (b) Sample: 25 volunteer fire companies selected. (c) Not a random sample, largest companies selected.
- 1.19** Assign a number to each shipped weather station. Select numbers using a random number generator and examine each weather station corresponding to the numbers selected.
- 1.21** (a) Population: All men who use a disposable razor. Sample: 100 men selected. (b) Not a random sample. Just selected men observed buying a razor.
- 1.23** Assign a number to each challenge. Randomly select numbers from a random number table or random number generator.
- 1.25** (a) Experimental study. (b) Variable: Lifetime of each blossom. (c) Flip a coin: heads is treated, tails is untreated.
- 1.27** (a) Population: All ceramic tile from this manufacturer. Sample: 25 tiles selected. (b) Not a random sample, all tiles from the same box.

Chapter 2

Section 2.1

- 2.1** (a) Numerical, continuous. (b) Numerical, discrete. (c) Categorical. (d) Numerical, discrete. (e) Numerical, continuous. (f) Categorical.
- 2.3** (a) Numerical, discrete. (b) Numerical, discrete. (c) Categorical. (d) Numerical, continuous. (e) Numerical, continuous. (f) Categorical.
- 2.5** (a) Continuous. (b) Continuous. (c) Discrete. (d) Continuous. (e) Continuous. (f) Discrete.
- 2.7** (a) Continuous. (b) Discrete. (c) Discrete. (d) Continuous. (e) Discrete. (f) Discrete.
- 2.9** (a) Discrete. (b) Categorical. (c) Continuous. (d) Continuous. (e) Categorical. (f) Continuous.

Section 2.2

2.11

| Art | Frequency | Relative frequency |
|---------------|-----------|--------------------|
| Abstract | 15 | 0.3571 |
| Expressionist | 6 | 0.1429 |
| Realist | 12 | 0.2857 |
| Surrealist | 9 | 0.2143 |
| Total | 42 | 1.0000 |

2.13

(a)

| Issue | Frequency | Relative frequency |
|---------------------|-----------|--------------------|
| Salary | 50 | 0.1250 |
| Health insurance | 100 | 0.2500 |
| Retirement benefits | 75 | 0.1875 |
| Class size | 60 | 0.1500 |
| Temporary faculty | 90 | 0.2250 |
| Parking | 25 | 0.6250 |
| Total | 400 | 1.0000 |

