

Answers to Selected Exercises

8. Set Estimation

2. Estimation in the Normal Model
 3. Estimation in the Bernoulli Model
 4. Estimation in the Two-Sample Normal Model
 5. Bayesian Set Estimation
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2. Estimation in the Normal Model

2.35.

- a. (10.14, 10.26)
- b. 10.25
- c. 10.15

2.36.

- a. (248.1, 251.9)
- b. (8.8, 11.6)
- c. (247.70, 252.30) × (8.62, 11.92)

2.37.

- a. 314.3.
- b. 51.6.

2.38. 25

2.39. 68

2.40.

- a. (836.8, 868.0). No, the true value is not in the interval.
- b. (69.4, 91.8)

2.41.

- a. (5.364, 5.532). Yes, the true value is in the interval.
- b. (0.1725, 0.3074)

2.42.

- a. (8.410, 8.822). Yes, the true value is in the interval.
- b. (0.629, 0.927)

☑ 2.43.

- a. (14.21, 15.03)
- b. (54.21, 56.83)
- c. (41.95, 44.49)

3. Estimation in the Bernoulli Model

☑ 3.13. (0.396, 0.458)

☑ 3.14. 0.579. No, the coin is almost certainly not fair.

☑ 3.15. (0.034, 0.116)

☑ 3.16. 1068

☑ 3.17. 3382

☑ 3.18. (0.443, 0.634). The theoretical value is approximately 0.637, which is not in the confidence interval.

4. Estimation in the Two-Sample Normal Model

☑ 4.15.

- a. The two methods are equivalent.
- b. The bivariate normal model works better.

☑ 4.16.

- a. (1.149, 1.936)
- b. (-24.834, -23.166)
- c. Perhaps not.
- d. Yes

☑ 4.17. A 90% confidence lower bound for the difference in IQ is 2.675. There may be a vary small increase.

☑ 4.18.

- a. (0.8, 1.3)
- b. (10.5, 14.1)
- c. Yes

☑ 4.19.

- a. (1.127, 1.578)
- b. (-0.832, -0.168)
- c. Perhaps not.

5. Bayesian Set Estimation

☑ 5.2. (0.436, 0.865)

5.4. (0.783, 2.406)

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