Solve all of the problems listed below. Each problem is worth 10 points.

For the first three problems, at most two students can work together on the problem. For the last two problems, everyone can work together. For all of the problems, you must turn in your own write-up.

Do the following exercises in Illner *et al.*:

- Exercise 6 on p. 82
- Exercise 1 on p. 114
- Exercise 8 on p. 116
- Exercise 2 on p. 168
- Exercise 2 on p. 38.