

## Homework 3

*Instructor: Sandy Irani*

Covers sections 8.6, 8.9, 8.10, 8.11

## Written Homework

zyBook Exercises are labeled in the text with an "E" in the title bar. You do not have to copy the questions for any of the written homework in your solutions that you turn in.

For the induction proofs in this week's homework, it is important that you label the base case and the inductive step. It is also important that you begin the inductive step with a clear statement about what you are assuming and what you will prove. In the actual derivation in the inductive step, you need to label where you are using the inductive hypothesis. Please refer to the examples in the zyBook for the correct format.

- 1) Prove that any amount of postage worth 18 cents or more can be made from 4-cent or 7-cent stamps.
- 2) Prove that any amount of postage worth 10 cents or more can be made from 5-cent, 6-cent, or 7-cent stamps.
- 3) zyBook exercise 8.6.2, part b
- 4) zyBook exercise 8.6.2, part c
- 5) zyBook exercise 8.9.1
- 6) zyBook exercise 8.10.1
- 7) zyBook exercise 8.9.2
- 8) zyBook exercise 8.10.2
- 9) zyBook exercise 8.9.4
- 10) zyBook exercise 8.10.4
- 11) zyBook exercise 8.11.1
- 12) zyBook exercise 8.11.2
- 13) zyBook exercise 8.11.3, Part b
- 14) zyBook exercise 8.11.3, Part f
- 15) Solve the following recurrence equation with the given initial values:
  - $b_0 = 2$
  - $b_1 = -6$
  - $b_n = 6b_{n-1} - 9b_{n-2}$ , for  $n \geq 2$

16) Solve the following recurrence equation with the given initial values:

- $b_0 = 8$
- $b_1 = 14$
- $b_n = 2b_{n-1} + 8b_{n-2}$ , for  $n \geq 2$

There are no challenge activities for this homework assignment.