Section 3.1

Exercise 53

a) Total: 2 quarters, 1 penny (51c)

b) Total: 2 quarters, 1 dimes, 1 nickel, 4 pennies (69c)

c) Total: 3 quarters, 1 penny (76c)

d) Total: 2 quarters, 1 dime (60c)

Exercise 55

a) Total: 2 quarters, 1 penny (51c)

b) Total: 2 quarters, 1 dime, 9 pennies (69c)

c) Total: 3 quarters, 1 penny (76c)

d) Total: 2 quarters, 1 dime (60c)
The fewest coins are given when $(n \bmod 25) \bmod 10 \geq 5$

Exercise 56

Proof by counterexample:
15c using the greedy algorithm would draw one 12c coin and 3 pennies, which is four coins, when one dime and one nickel would suffice.

0.1 Section 3.2

Exercise 27

a) a

b) b

Exercise 30

a)

b)

Exercise 34

a)

b)

Exercise 42

a)

b)

Section 4.1

Exercise 11

a)

b)