1. Work Project 1.1 (p. 38) and the following:

Suppose that you can borrow P_0 dollars from a bank at I percent yearly interest and repay the amount in equal monthly installments of M dollars.

   a. If $P(t)$ is the money owed at time t, show that $P(0) = P_0$ and

$$P(t + \Delta t) = P(t) \left(1 + \frac{I}{n}\right) - M.$$

What is Δt and n?

   b. For example, part of the first payment consists of $P_0 I/n$ interest. How much of your first payment goes towards reducing the amount owed?

   c. Solve the equation for $P(t + i\Delta t)$.

   d. How much should your monthly payments be if the money is to be completely repaid to the bank in N years?

   e. What is the total amount of money paid to the bank?

   f. If you borrow \$3000 for a car and pay it back monthly in 4 years at 12.5 percent yearly interest, then how much money have you paid in total for the car. Create an amortization table to show the amount of each payment that goes towards interest and how much towards reducing the principal. Show the remaining balance on the principal after each payment.

2. Work Project 1.2 (p. 39).

3. Work Project 1.3 (p. 40).