Complete the problems listed below. Show all of your work. Each individual must turn in their own work.

1. A person makes an initial deposit of y_0 dollars into a savings account paying an annual interest rate of 12%, compounded monthly. He plans to withdraw \$120 at the end of each month. What is the smallest value of y_0 so that the money will never run out? Round your answer to the nearest dollar.

2. John borrows 60000 dollars from a bank that charges interest at an annual rate of 10 percent, compounded monthly. Calculate the monthly payment that John would have to make in order for the loan to be paid off after exactly 25 years. (Give your answer, in dollars, to the nearest cent. You should not include the dollar sign or any commas in your answer.)

3. Gary has just retired, and has 500000 dollars in his retirement account. The account will earn interest at an annual rate of 8 percent, compounded monthly. At the end of each month, Gary will withdraw a fixed amount to cover his living expenses.

   (a) Gary wants his savings to last exactly 25 years. How much money can he withdraw each month? (Give your answer in dollars, correct to the nearest cent.)

   (b) What is the maximum amount that Gary can withdraw each month if he wants his savings to last indefinitely?