1. Emily wants to buy a new car for $25,300, including all fees and taxes. "Now's a good time to buy," claims the salesman, "we're offering 4 year loans at 5.9%. Even if you have the cash, you're better off borrowing." Emily is confused.

   The salesman goes on to explain the payment on the car loan would be $593.01, which means that total interest paid on the loan will be $3,164.48. By investing the $25,300 at current savings account rates of 3.5% (compounded monthly), Emily could generate interest of $3,796.00 which means she'd be $631.52 better off by investing her money in a savings account.

   (a) Verify the numbers in the second paragraph.

   (b) Is Emily really better off by borrowing the money for her new car?

2. John and Jane Smith have just received a quote for home, car and liability insurance. The annual premium amounts to $3,500. They are given the choice of paying i) the entire amount in advance, ii) $310 per month with the first and last month due in advance; or iii) $920 per quarter, payable on the first of every quarter.

   (a) Calculate the rates being charged for Options (ii) and (iii).

   (b) Suppose the Smiths have exactly $3,500 in the bank, and suppose they can either borrow or lend at 15% compounded monthly. What do you recommend?

3. A recent newspaper advertisement offered car buyers the opportunity to lease a new vehicle for \$5,000 down plus \$350 per month for 48 months. At the end of the 48 months, the car will be returned to the dealer. Alternatively, the same car could be purchased outright for \$34,000. It is estimated that in 48 months, the car could be sold for \$20,000.

   At what interest rate (compounded monthly) are these two options equivalent?