Exercise 1. *Compounding* [2]

1. Given a 15% interest rate with monthly compounding, calculate the equivalent interest rate with continuous compounding.
2. Given a 12% interest rate with continuous compounding, find the equivalent interest rate with quarterly compounding.

Exercise 2. *Compounding* [2]

What rate of interest with continuous compounding is equivalent to 15% per annum with monthly compounding?

Exercise 3. *Doubling* [2]

How long does it take to double a $100 initial investment when investing at a 5% continously compounded interest rate?

Exercise 4. *Invest* [2]

Suppose you have $1000 and an opportunity to invest it and earn 10% per year for certain.

1. If you invest $1000, how much will you have after one year?
2. Suppose after 1 year you reinvest the $1100 at the same 10% rate of interest. How much will you have after the second year?

Exercise 5. *Arnold's autos.* [3]

You are interested in buying a new car. Your car dealer (Arnold's autos) offers to sell you the car for $10,000 cash or $5,000 per year for the next 3 years. Your banker has agreed to lend you the $10,000 to purchase the car if you repay the bank $499.24 per month for the next 2 years. Your mother has also agreed to lend you the $10,000 if you pay her $2,000 per year for 4 years and a balloon payment of $12,000 in the fifth year.

1. If these are your only alternatives, what should you do?

Exercise 6. *House Sale (RWJ 4.7)* [3]

You are selling your house. The Smiths have offered you $115,000. They will pay you immediately. The Joneses have offered you $150,000, but they cannot pay you until three years from today. The prevailing interest rate is 10%.

1. Which offer should you choose?

Exercise 7. *IRR* [1]

An investment of $210 produces a perpetual stream of cash inflows. Next year, the cash inflow will be $10.50, and the cash inflow will grow at 5% per year.

What is the internal rate of return (IRR) of this investment?