CMP COMM 298 – Introduction To Finance
Review Worksheet

Suggestions

These questions are a decent representation of the sort of material that comes up on the COMM 298 midterm. The key to doing well on this midterm is becoming proficient with the calculations. The adage practice makes perfect really applies to this exam – make sure you can do the questions quickly and efficiently! Time yourself and try to memorize general mechanisms – makes life much easier.

Questions:

1. Suppose you deposit $15 in a savings account today in a bank; the interest rate is 5% per year
   a. What will be your bank balance in 10 years
   b. What will be your bank balance in 100 years

2. Suppose you deposit $100 in an account – how long would it take for the balance to grow to $10,000 – assuming a 5% interest rate
   a. How long would it take assuming a 3.5% interest rate (compounded annually)

3. What interest rate would result in a deposit of $50 growing to $125 in 8 years?

4. Say you invest $1000 in an account today, and deposit $150 a year from now – assuming a 10% interest rate, what will be the balance in your account 5 years from today?
   a. What would be the balance 10 years from now, if on the 5th year, you deposited another $600?

5. If $1,000 is placed in a savings account at the end of each year, and the interest rate is 6%, what will be the value in the account at the end of the 10th year
   a. What will be the value in the account given only simple interest is earned by money paid into the account
   b. What will be the value in the account given compound interest earned by money paid into the account AND the money is deposited at the beginning of each year

6. Say someone wants to retire in 40 years from now at the age of 60, after graduating from university. You expect to live to live until the age of 80 and will need $20,000 per year to live off of – how much needs to be deposited in your account on a yearly basis for the next 10 years, given that interest rates are 7%?
   a. How much will you need to deposit on an annual basis between the next 10 and 20 years, given 5% annual compound interest

7. You come home after a long night at the frat houses, and a penguin is waiting for you, sitting on your bed- he says he will give you a bunch of money – but there’s a catch: he will either give you $40,000 per year for 5 years, or $110,000 per year, starting 5 years from now. If the opportunity cost of capital is 10%, which option would you pick?

8. What is the value of receiving $10 per year, forever, if the interest rate is 4%

9. You have the option of either receiving $10,000 now, payments of $450 in perpetuity, or $3,000 per years for 4 years – opportunity cost of capital is 5% - evaluate your options

10. What`s the market value of a coupon bond with the following characteristics: face value of $2,000 ; matures in 5 years, coupon rate of 10%, and effective yield of 5%

    a. Calculate the market price assuming it matures in 50 years
    b. Calculate the market price assuming the coupon rate is 4%
    c. Calculate the market price assuming the effective yield is 10% and coupon is 10%
    d. Calculate the market price assuming the effective yield is 3%, the coupon is 6% and coupons are paid semi-annually

11. What is the coupon rate on a bond that pays coupons semi-annually, has an effective yield of 10%, a face value of $1,250; and a time to maturity of 6 years?
    a. What will be the coupon rate if coupons are paid annually?

12. Suppose you buy one share of NYSE: AA one year ago for $9.00, you receive a dividend today for $2.00, and sold for $15.00 – what was your realized rate of return?

13. Today, GM announced a dividend of $3.50 to be paid in one year from now; if the current share price of GM is $45.00, and the required rate of return is 13%, what growth rate is consistent with the current stock price?

14. Penguins Incorporated just went public; dividend growth is expected to be 30% over the first year, 10% over the second and third years, and then 6% thereafter. The company is listed on the New York stock exchange and has just paid a dividend of $2.00

    a. If the market is calling for a return of 12%, what is the value of this stock?
    b. What would be the value of this stock if the perpetual growth rate of dividends was 20%?

15. What is the value of a share of company that dishes out a constant dividend of $10, if the opportunity cost of capital is 25%

16. The stock price of company X is $54.00 and the stock price of company Y is $14.00 dollars. Both companies are from similar industries, similar sizes, and have relatively similar qualitative features. However Company X pays constant dividends of $4.00 per share, whereas company Y pays constant dividends of $1.60 per share. The dividend growth rate of each company is unknown, but it is known that they are in an industry which is expected to experience strong growth over the next 2 years. Assuming an 8% cost of capital, which company would you invest in over the other, and why?

a. What would your decision be if the dividend growth rate for Company X was 4%, and the dividend growth rate for company Y was 2%?