Chapter 5: interest rates assignment

Business

Chapter 5: interest rates BY 75014 Chapter 5 : Interet rates page161 Interest rate quotes and adjustments 5-1 . Your bank is offering you an account that will pay 20% interest in total for a two- year deposit. Determine the equivalent discount rate for a period length of a. Six months. b. One year. c. One month. a. Since 6 months is [pic] of 2 years, using our rule [pic] So the equivalent 6 month rate is 4. 66%. b. Since one year is half of 2 years [pic] So the equivalent 1 year rate is 9. 54%. c. Since one month is [pic] of 2 years, using our rule [pic] So the equivalent 1 month rate is 0. 63%. 5-2. Which do you prefer: a bank account that pays 5% per year (EAR) for three years a. An account that pays 2[pic] every six months for three years? b. An account that pays 7[pic] every 18 months for three years? c. An account that pays [pic] per month for three years? If you deposit $1 into a bank account that pays 5% per year for 3 years you will have [pic] after 3 years. a. If the account pays [pic] per 6 months then you will have [pic] after 3 years, so you b. If the account pays [pic] per 18 months then you will have [pic] after 3 years, so you prefer 5% per year. c.

If the account pays [pic] per month then you will have [pic] after 3 years, so you prefer [pic] every month. 5-3. Many academic institutions offer a sabbatical policy. Every seven years a professor is given a year free of teaching and other administrative responsibilities at full pay. For a professor earning $70, 000 per year who works for a total of 42 years, what is the present value of the amount she will earn while on sabbatical if the nterest rate is 6% (EAR)? Timeline: 10 II. [continues] 5-4) 10% APR compounded monthly, 10% APR compounded annually, and 9% APR compounded daily.

Compute the EAR for each investment choice. (Assume there are 365 days in the year.) 1. 10% APR rate compounded monthly: earned annual rate = (1 + 0. 1/12)A12 -1 ????" 0. 1047 = 10. 47% 2. 10% APR rate compounded annually: earned annual rate = 10% 3. 9% APR rate compounded daily: earned annual rate = (1 + 0. 09/365)A365 – 1 0. 09416= 9. 416% Le m???? me trouv???? sur un autre site : 5. 4. You have found three investment choices for a one-year deposit: 10% APR Compounded monthly, 10% APR compounded annually, and 9% APR compounded daily. Compute the EAR for each investment choice. Assume that there are 365 days in the year.) Sol: 1 +EAR= (1 +0k)k So, for 10% APR compounded monthly, the EAR is 1+EAR= For 10% compounded annually, the EAR is * EAR= 10% (remains the same). For 9% compounded daily 1 +EAR= (1+0. 09/365)365 = 1. 09416 * EAR= 9. 4% 5-5) Je n'ai pas trouv???? 5-7) Suppose the interest rate is 8% APR with monthly compounding. What is the resent value of an annuity that pays $90 every 6 months for 5 years? This question is harder than it seems. 0 0The problem is that the payment period does not coincide with the interest period.

OSO I will convert the 8% compounded monthly to a rate compounded semi-annually Niet the semiannual rate be J O (1+J)A2 = (1. 02)A4 01+1 = (1. 02)A2 = 1. 0404 OJ – . 0404 oopv= 90(1 – 1. 0404A-30)/. 0404 $ 1548. 75 5-8. You can earn $50 in interest on a $1000 deposit for eight months. If the EAR is the same regardless of the length of the investment, how much interest will you earn n a $1000 deposit for a. 6 months. b. 1 year. c. 1 1/2 years. Since we can earn $50 interest on a $1000 deposit, Rate of interest is 5% Therefore, EAR = (1. 5)12/8-1 a) 1000(1. 075936/12 – 1) = 37. 27 b)

1000(1. 07593-1) = 75. 93 C) 1000(1. 075933/2 -1) = 116. 03 5-12. Capital One is advertising a 60-month, 5. 99% APR motorcycle loan. If you need to borrow $8000 to purchase your dream Harley Davidson, what will your monthly payment be? Sol: Discount rate for 12 months is, 5. 99/12 = 0. 499167% 8000/11 /0. 004991(1-1 +0. 004991)60)] = $154. 63 -13) Oppenheimer Bank is offering a 30 year mortgage with an EAR of 5 318%. If you plan to borrow $1 50, 000 what will your monthly payment be? 1 .

Convert the effective interest rate from annual to monthly: 1. 05375A(1112) = 1. 0043725 2. Monthly interest = 0. 43725% 3. Number of payments = 360 4. present value = $150, 000 5. Monthly payment = $828. 02 (using a financial calculator). If you do not have a financial calculator, you can use the annuity formula: Where: S A = periodic payment amount S P = amount of principal, net of initial payments, meaning " subtract any down- ayments" S i = periodic interest rate S n = total number of payments For a 30-year loan with monthly payments, so A = $1 50, 000 (0. 043725 +) = $828. 02 Attention, pas les m???? mes chiffres pour celui-ci, mais m???? me principe l! 5-14) You have decided to refinance your mortgage. You plan to borrow whatever is outstanding on your current mortgage. The current monthly payment is $5, 200, and there are exactly 27 years left on the loan. You have Just made your 36th monthly payment and the mortgage interest rate is 6% APR. How much do you owe on the mortgage today? -16. You have Just purchased a home and taken out a $500, 000 mortgage.

The mortgage has a 30-year term with monthly payments and an APR of 6%. a. How much b. How much will you pay in interest, and how much will you pay in principal, during the 20th year (i. e. , between 19 and 20 years from

now)? Sol: a. APR of 6%/12 = 0. 5% per month. payment = $2997. 75 Total annual payments = 2997. 75 x 12 = $35, 973. Loan Balance after 1 year 1/1. 005348)] = $493, 860. Therefore, 500, 000 – 493, 860 = $6140 is principal repaid in first year.... [continues]