

Chapter 04 study questions

Business



Chapter 004 Discounted Cash Flow Valuation 1. The interest rate charged per period multiplied by the number of periods per year is called the _____ rate. a. effective annual b. annual percentage c.

periodic interest d. compound interest e. daily interest Answer: b Difficulty

level: Easy Topic: ANNUAL PERCENTAGE RATE 2. You are comparing two investment options. The cost to invest in either option is the same today. Both options will provide you with \$20, 000 of income.

Option A pays five annual payments starting with \$8, 000 the first year followed by four annual payments of \$3, 000 each. Option B pays five annual payments of \$4, 000 each.

Which one of the following statements is correct given these two investment options? a. Both options are of equal value given that they both provide \$20, 000 of income. b.

Option A is the better choice of the two given any positive rate of return. c. Option B has a higher present value than option A given a positive rate of return. d. Option B has a lower future value at year 5 than option A given a zero rate of return. e.

Option A is preferable because it is an annuity due. Answer: b Difficulty level: Medium Topic: UNEVEN CASH FLOWS AND PRESENT VALUE 3. You are comparing two annuities with equal present values.

The applicable discount rate is 7. 5 percent.

One annuity pays \$5,000 on the first day of each year for twenty years. How much does the second annuity pay each year for twenty years if it pays at the end of each year? a. \$4,651 b. \$5,075 c. \$5,000 d. \$5,375 e.

\$5,405 Answer: d Feedback: Feedback: Because each payment is received one year later, then the cash flow has to equal: Feedback: $\$5,000 \times (1 + .075) = \$5,375$ Difficulty level: Medium Topic: ORDINARY ANNUITY VERSUS ANNUITY DUE 4. Martha receives \$100 on the first of each month. Stewart receives \$100 on the last day of each month.

Both Martha and Stewart will receive payments for five years. At an 8% discount rate, what is the difference in the present value of these two sets of payments? a.

\$32.88 b. \$40.00 c. \$99.01 d.

\$108.00 e. \$112.50 Answer: a Feedback: Difficulty level: Medium Topic: ORDINARY ANNUITY VERSUS ANNUITY DUE 5. You borrow \$149,000 to buy a house. The mortgage rate is 7.

5% and the loan period is 30 years. Payments are made monthly. If you pay for the house according to the loan agreement, how much total interest will you pay? a. \$138,086 b. \$218,161 c.

\$226,059 d. \$287,086 e. \$375,059 Answer: c Feedback:

Feedback: Total interest = $(\$1,041.83 \times 30 \times 12) - \$149,000 = \$226,058.80 = \$226,059$ (rounded) Difficulty level: Medium Topic: ORDINARY ANNUITY PAYMENTS AND COST OF INTEREST 6.

You estimate that you will have \$24,500 in student loans by the time you graduate. The interest rate is 6.5 percent. If you want to have this debt paid in full within five years, how much must you pay each month? a. \$471.

30 b. \$473. 65 c. \$476. 79 d. \$479.

37 e. \$480. 40 Answer: d Feedback: Difficulty level: Medium Topic:

ORDINARY ANNUITY PAYMENTS AND PRESENT VALUE 7. Your car dealer is willing to lease you a new car for \$299 a month for 60 months.

Payments are due on the first day of each month starting with the day you sign the lease contract.

If your cost of money is 4.9 percent, what is the current value of the lease?

a. \$15,882. 75 b. \$15,906.

14 c. \$15,947. 61 d. \$16,235. 42 e.

\$16,289. 54 Answer: c Feedback: Difficulty level: Medium Topic: ANNUITY

DUE PAYMENTS AND PRESENT VALUE 8. Winston Enterprises would like to buy some additional land and build a new factory. The anticipated total cost is \$136 million. The owner of the firm is quite conservative and will only do this when the company has sufficient funds to pay cash for the entire expansion project.

Management has decided to save \$450,000 a month for this purpose. The firm earns 6% compounded monthly on the funds it saves. How long does the company have to wait before expanding its operations? a. 184. 61 months b. 199.

97 months c. 234. 34 months d. 284. 61 months e. 299.

97 months Answer: a Feedback: Difficulty level: Medium Topic: ORDINARY ANNUITY TIME PERIODS AND FUTURE VALUE 9. Today, you are retiring. You have a total of \$413, 926 in your retirement savings and have the funds invested such that you expect to earn an average of 3 percent, compounded monthly, on this money throughout your retirement years.

You want to withdraw \$2, 500 at the beginning of every month, starting today. How long will it be until you run out of money? a. 185.

00 months b. 213. 29 months c. 227. 08 months d.

236. 84 months e. 249. 69 months Answer: b Feedback: Difficulty level: Medium Topic: ANNUITY DUE TIME PERIODS AND PRESENT VALUE 10. You have been investing \$120 a month for the last 15 years. Today, your investment account is worth \$47, 341.

19. What is your average rate of return on your investments? a. 9. 34% b. 9. 37% c. 9. 40% d. 9. 42% e. 9.

46% Answer: e Feedback: Feedback: This can not be solved directly, so it's easiest to just use the alculator method to get an answer. You can then use the calculator answer as the rate in the formula just to verify that you answer is correct. Feedback: Difficulty level: Medium Topic: ORDINARY ANNUITY INTEREST RATE 11. Today, you turn 21. Your birthday wish is that you will be a millionaire by your 40th birthday.

In an attempt to reach this goal, you decide to save \$25 a day, every day until you turn 40. You open an investment account and deposit your first \$25 today. What rate of return must you earn to achieve your goal? a. 15.07% b. 15.13% c. 15.17% d. 15.

20% e. 15.24% Answer: a Feedback:

Feedback: This can not be solved directly, so it's easiest to just use the calculator method to get an answer. You can then use the calculator answer as the rate in the formula just to verify that your answer is correct. Feedback: Difficulty level: Easy Topic: ANNUITY DUE INTEREST RATE 12.

You are considering a job offer. The job offers an annual salary of \$52,000, \$55,000, and \$60,000 a year for the next three years, respectively. The offer also includes a starting bonus of \$2,000 payable immediately. What is this offer worth to you today at a discount rate of 6 percent? a. \$148,283.

56 b. \$148,383. 6 c. \$150,283. 56 d.

\$150,383. 56 e. \$152,983. 56 Answer: d Feedback: Difficulty level: Easy Topic: UNEVEN CASH FLOWS AND PRESENT VALUE 13. One year ago, the Jenkins Family Fun Center deposited \$3,600 in an investment account for the purpose of buying new equipment four years from today.

Today, it is adding another \$5,000 to this account. It plans on making a final deposit of \$7,500 to the account next year. How much will be available when it is ready to buy the equipment, assuming it earns a 7% rate of return? a. \$18,159. 65 b. \$19,430.

84 c. \$19, 683. 25 d. \$20, 194. 54 e. \$20, 790.

99 Answer: e

Feedback: Difficulty level: Medium Topic: UNEVEN CASH FLOWS AND FUTURE VALUE 14. The Bluebird Company has a \$10, 000 liability it must pay three years from today. The company is opening a savings account so that the entire amount will be available when this debt needs to be paid. The plan is to make an initial deposit today and then deposit an additional \$2, 500 a year for the next three years, starting one year from today. The account pays a 3% rate of return.

How much does the Bluebird Company need to deposit today? a. \$1, 867. 74
b. \$2, 079. 89 c. \$3, 108.

09 d. \$4, 276. 34 e. \$4, 642. 28 Answer: b

Feedback: Difficulty level: Medium Topic: PRESENT VALUE, PAYMENTS AND FUTURE VALUE 15. The government has imposed a fine on the Imperial Company.

The fine calls for annual payments of \$100, 000, \$250, 000, and \$250, 000, respectively over the next three years. The first payment is due one year from today. The government plans to invest the funds until the final payment is collected and then donate the entire amount, including investment earnings, to a national health center. The government will earn 3. 5% on the funds held. How much will the national health center receive three years from today? a.

613, 590. 00 b. \$614, 622. 50 c. \$615, 872. 50 d.

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\$616, 006. 00 e. \$619, 050. 05 Answer: c Feedback: Difficulty level: Medium
Topic: UNEVEN CASH FLOWS AND FUTURE VALUE 16. You are paying an
effective annual rate of 13.

8% on your credit card. The interest is compounded monthly. What is the
annual percentage rate on your account? a. 11. 50% b.

12. 00% c. 13. 00% d. 13.

80% e. 14. 71% Answer: c Feedback: Difficulty level: Medium Topic: ANNUAL
PERCENTAGE RATE 17. Your credit card company quotes you a rate of 14. 9
percent. Interest is billed monthly.

What is the actual rate of interest you are paying? . 13. 97% b. 14. 90% c.

15. 48% d. 15. 96% e. 16.

10% Answer: d Feedback: Difficulty level: Medium Topic: EFFECTIVE ANNUAL
RATE 18. You have \$2, 500 that you want to use to open a savings account.
You have found five different accounts that are acceptable to you. All you
have to do now is determine which account you want to use such that you
can earn the highest rate of interest possible. Which account should you use
based upon the annual percentage rates quoted by each bank? a.

Account A b. Account B c. Account C d. Account D e. Account E Answer: b

Feedback: Difficulty level: Medium

Topic: EFFECTIVE ANNUAL RATE 19.

What is the effective annual rate of 9.75% compounded continuously? a. 9.99% b. 10.11% c.

10.24% d. 10.28% e. 10.30% Answer: c Feedback: $EAR = e^{0.0975} - 1 = 0.1011$

Feedback: Using ex on a financial calculator: $EAR = 10.24$ percent Feedback: On the Texas Instruments BA II Plus, the input is: Feedback: .0975, 2nd, ex, -1, = .

1024 = 10.24 percent Difficulty level: Medium Topic: CONTINUOUS

COMPOUNDING 20. The Smart Bank wants to appear competitive based on quoted loan rates and thus must offer a 7.9% annual percentage rate.

What is the maximum rate the bank can actually earn based on the quoted rate? a.

7.90% b. 8.18% c. 8.20% d.

8.22% e. 8.39% Answer: d Feedback: $EAR = e^{0.079} - 1 = 0.0822$

Feedback: Using ex on a financial calculator: $EAR = 8.22$ percent Feedback: On the Texas Instruments BA II Plus, the input is: Feedback: .079, 2nd, ex, -1, = .

0822 = 8.22 percent Difficulty level: Medium Topic: CONTINUOUS

COMPOUNDING 21. Today you earn a salary of \$28,500. What will be your annual salary fifteen years from now if you earn annual raises of 3.5 percent? a. \$47,035.

35 b. \$47,522.89 c. 47,747.44 d. \$48,091.

91 e. \$48, 201. 60 Answer: c Feedback: Difficulty level: Medium Topic:

FUTURE VALUE 22. You hope to buy your dream house six years from now.

Today your dream house costs \$189, 900. You expect housing prices to rise by an average of 4.

5% per year over the next six years. How much will your dream house cost by the time you are ready to buy it? a. \$240, 284. 08 b. \$246, 019. 67 c.

\$246, 396. 67 d. \$246, 831. 94 e. \$247, 299. 20 Answer: e Feedback:

Difficulty level: Medium Topic: FUTURE VALUE 23.

You would like to give your daughter \$40, 000 towards her college education thirteen years from now.

How much money must you set aside today for this purpose if you can earn 6. 3% on your funds? a. \$17, 750. 00 b. \$17, 989.

28 c. \$18, 077. 05 d. \$18, 213. 69 e. \$18, 395.

00 Answer: c Feedback: Difficulty level: Medium Topic: PRESENT VALUE 24.

You want to have \$10, 000 saved ten years from now. How much less do you have to deposit today to reach this goal if you can earn 6% rather than 5% on your savings? a. \$555. 18 b. \$609.

81 c. \$615. 48 d. \$928. 73 e.

\$1, 046. 22 Answer: a Feedback: Present value = $\$10,000 \times [1 (1 + .06)^{10}]$
 $= \$5,583.95$; Present value = $\$10,000 \times [1 (1 + .05)^{10}] = \$6,139.13$;
 Difference = \$6, 139.

13 - \$5, 583. 95 = \$555. 18 Feedback: Difficulty level: Medium Topic:

PRESENT VALUE AND RATE CHANGES 25. The great, great grandparents of one of your classmates sold their factory to the government 104 years ago for \$150, 000. If these proceeds had been invested at 6%, how much would this legacy be worth today? Assume annual compounding. a.

\$ 936, 000. 00 b. \$ 1, 086, 000. 00 c. \$60, 467, 131. 54 d.

\$60, 617, 131. 54 e. \$64, 254, 159. 44 Answer: e Feedback: \$150, 000(1.

06)104 = \$64, 254, 159. 44 Difficulty level: Medium Topic: FUTURE VALUE - SINGLE SUM