Review for Exam 1

Instructions: Please read carefully

- The exam will have 20 multiple choice questions and 4 work problems.
- Questions in the multiple choice section will be either concept or calculation questions. The calculation questions will be similar to those in the quizzes, assignment, and review. However, the concept questions will be related to any topic in chapter 1 we have covered in the class. The concept questions in the review are only some sample questions. You should NOT study only topics in the review.
- For the work problems, you need to solve the problems without knowing the possible answers. The questions will be similar to those in the quizzes, assignment, and review except that the possible solutions are not given.
- You can bring a formula sheet to the exam.
Chapter 1

**CONTROLLER**

1. The person generally directly responsible for overseeing the tax management, cost accounting, financial accounting, and data processing functions is the:
   a. treasurer.
   b. director.
   c. controller.
   d. chairman of the board.
   e. chief executive officer.

**TREASURER**

2. The person generally directly responsible for overseeing the cash and credit functions, financial planning, and capital expenditures is the:
   a. treasurer.
   b. director.
   c. controller.
   d. chairman of the board.
   e. chief operations officer.

**SOLE PROPRIETORSHIP**

3. A business owned by a single individual is called a:
   a. corporation.
   b. sole proprietorship.
   c. general partnership.
   d. limited partnership.
   e. limited liability company.

**GENERAL PARTNERSHIP**

4. A business formed by two or more individuals who each have unlimited liability for business debts is called a:
   a. corporation.
   b. sole proprietorship.
   c. general partnership.
   d. limited partnership.
   e. limited liability company.

**LIMITED LIABILITY COMPANY**

5. A business entity operated and taxed like a partnership, but with limited liability for the owners, is called a:
   a. limited liability company.
   b. general partnership.
   c. limited proprietorship.
   d. sole proprietorship.
   e. corporation.

**AGENCY PROBLEM**

6. A conflict of interest between the stockholders and management of a firm is called:
   a. stockholders’ liability.
   b. corporate breakdown.
   c. the agency problem.
   d. corporate activism.
   e. legal liability.
SECONDARY MARKET
7. When one shareholder sells stock directly to another the transaction is said to occur in the:
   a. dealer market.
   b. primary market.
   c. secondary market.
   d. OTC market.
   e. NASDAQ market.

PARTNERSHIP
8. A general partner:
   a. has less legal liability than a limited partner.
   b. has more management responsibility than a limited partner.
   c. faces double taxation whereas a limited partner does not.
   d. cannot lose more than the amount of his/her equity investment.
   e. is the term applied only to corporations which invest in partnerships.

PARTNERSHIP
9. Which of the following are disadvantages of a partnership?
   I. limited life of the firm
   II. personal liability for firm debt
   III. greater ability to raise capital than a sole proprietorship
   IV. lack of ability to transfer partnership interest
   a. I and II only
   b. III and IV only
   c. II and III only
   d. I, II, and IV only
   e. I, III, and IV only

NASDAQ
10. Which of the following statements concerning NASDAQ are correct?
   I. Most smaller firms are listed on NASDAQ rather than on the NYSE.
   II. NASDAQ is an electronic market.
   III. NASDAQ is an auction market.
   IV. NASDAQ is an OTC market.
   a. I and II only
   b. I and III only
   c. II and IV only
   d. I, II, and IV only
   e. I, II, III, and IV
Chapter 2

Use these financial statements to answer the following questions

<table>
<thead>
<tr>
<th>Balance Sheet</th>
<th>2004</th>
<th>2005</th>
<th>2004</th>
<th>2005</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cash</td>
<td>$ 1,100</td>
<td>$ 1,300</td>
<td>Accounts payable</td>
<td>$ 3,000</td>
</tr>
<tr>
<td>Accounts receivable</td>
<td>3,900</td>
<td>3,600</td>
<td>Long-term debt</td>
<td>6,800</td>
</tr>
<tr>
<td>Inventory</td>
<td>5,600</td>
<td>5,100</td>
<td>Common stock</td>
<td>8,800</td>
</tr>
<tr>
<td>Net fixed assets</td>
<td>10,900</td>
<td>12,800</td>
<td>Retained earnings</td>
<td>2,900</td>
</tr>
<tr>
<td>Total assets</td>
<td>$21,500</td>
<td>$22,800</td>
<td>Total liabilities and equity</td>
<td>$21,500</td>
</tr>
</tbody>
</table>

| Income Statement | | | | |
| Net Sales       | $41,000 | | | |
| Costs           | 31,500  | | | |
| Depreciation    | 1,600   | | | |
| EBIT            | 7,900   | | | |
| Interest        | 400     | | | |
| Taxable income  | 7,500   | | | |
| Taxes           | 1,125   | | | |
| Net Income      | $ 6,375 | | | |

11. What is the amount of the current assets for 2005?
   a. $4,900  b. $10,000  c. $10,600  d. $22,800

12. What is the amount of the net working capital for 2005?
   a. $600     b. $2,800  c. $7,900  d. $13,400

13. What is the total amount of stockholders’ equity for 2005?
   a. $4,400   b. $9,000   c. $13,400  d. $22,800

14. What is the amount of the non-cash expenses?
   a. $1,600   b. $2,000   c. $4,625   d. $4,875

15. What is the amount of dividends paid this year?
   a. $3,575   b. $4,875   c. $6,375   d. $7,875

16. What is the amount of the cash flow from operations?
   a. $6,375   b. $7,900   c. $7,975   d. $8,375

17. What is the amount of net capital spending?
   a. $300     b. $1,900   c. $2,900   d. $3,500

18. What is the change in net working capital?
   a. -$800    b. -$300    c. $300     d. $800

19. What is the amount of the cash flow to creditors?
   a. -$800    b. -$100    c. $100     d. $800

20. What is the amount of the cash flow to stockholders?
   a. $3,175   b. $3,375   c. $4,675   d. $6,375
BALANCE SHEET
21. The financial statement showing a firm’s accounting value on a particular date is the:
   a. income statement.
   b. balance sheet.
   c. statement of cash flows.
   d. tax reconciliation statement.
   e. shareholders’ equity sheet.

CURRENT ASSETS
22. A current asset is:
   a. an item currently owned by the firm.
   b. an item that the firm expects to own within the next year.
   c. an item currently owned by the firm that will convert to cash within the next 12 months.
   d. the amount of cash on hand the firm currently shows on its balance sheet.
   e. the market value of all items currently owned by the firm.

SHAREHOLDERS’ EQUITY
23. A firm has common stock of $100, paid-in surplus of $300, total liabilities of $400, current assets of $400, and fixed assets of $600. What is the amount of the shareholders’ equity?
   a. $200
   b. $400
   c. $600
   d. $800
   e. $1,000

CASH FLOW TO STOCKHOLDERS
24. Thompson’s Jet Skis has operating cash flow of $218. Depreciation is $45 and interest paid is $35. A net total of $69 was paid on long-term debt. The firm spent $180 on fixed assets and increased net working capital by $38. What is the amount of the cash flow to stockholders?
   a. -$104
   b. -$28
   c. $28
   d. $114
   e. $142

Chapter 5

SIMPLE INTEREST
25. Thomas invests $100 in an account that pays 5 percent simple interest. How much money will Thomas have at the end of five years?
   a. $120.00
   b. $123.68
   c. $124.92
   d. $125.00
   e. $127.63
26. Alpha Bank pays interest of 4 percent compounded annually. Beta Bank pays 4 percent simple interest. Which one of the following statements is true if you invest $1,000 in each bank for five years? 
a. Alpha Bank will pay you a total of $200 in interest over the five years. 
b. Beta Bank will pay you more interest over the five years than Alpha Bank will. 
c. Alpha Bank will pay you a total of $216.65 in simple interest. 
d. Alpha Bank will pay you $16.65 of interest on interest.

27. Martha wants to have $10,000 in her investment account ten years from now. How much does she have to deposit today to achieve her goal if she can earn 8 percent compounded annually? 
a. $4,631.93  
b. $4,665.07  
c. $5,259.26  
d. $5,589.25

28. Jim has $1,650 saved today. He wants to buy a different vehicle as soon as he has $3,200 saved. How long does Jim have to wait to get his vehicle if he earns 7.5 percent compounded annually? 
a. 8.67 years  
b. 9.08 years  
c. 9.16 years  
d. 9.23 years

29. Linens, Etc. currently pays an annual dividend of $1.60 per share. At what rate must the company increase their dividend if they want to pay $2.40 a share three years from now? 
a. 14.47 percent  
b. 16.67 percent  
c. 18.88 percent  
d. 19.13 percent

30. Lewis borrows $10,000 today at 8.25 percent compounded annually. The terms of the loan require Lewis to repay the principal and interest in one lump sum four years from today. How much will Lewis have to pay in four years? 
a. $13,300.00  
b. $13,466.67  
c. $13,731.30  
d. $13,864.13

31. All else equal, the future value will _____ as the period of time increases. 
a. increase  
b. decrease  
c. remain constant

32. You have been offered a business opportunity that will pay you $25,000 in five years if you invest $10,000 today. What is the expected rate of return on this investment? 
a. 20.11 percent  
b. 25.74 percent  
c. 27.02 percent  
d. 30.00 percent

33. All else equal, the present value will _____ as the rate of return decreases. 
a. increase  
b. decrease  
c. remain constant

34. You opened a savings account four years ago and deposited $200 at that time. Three years ago, you added another $400 to the account. Last year, you deposited an additional $100 into this account. The rate of return is 5 percent compounded annually. How much is in your account today? 
a. $772.53  
b. $806.15  
c. $811.15  
d. $813.67

35. Your grandmother deposited $1,000 into an account for you fifteen years ago. Today, the account is worth $3,548. If interest is compounded annually, what rate of return have you been earning on this money? 
a. 8.75 percent  
b. 8.81 percent  
c. 8.95 percent  
d. 9.06 percent
FUTURE VALUE AND RATE CHANGES
36. Alpo, Inc. invested $500,000 to help fund a company expansion project scheduled for eight years from now. How much additional money will they have eight years from now if they can earn 9 percent rather than 7 percent on this money?
   a. $58,829.69
   b. $86,991.91
   c. $118,009.42
   d. $126,745.19
   e. $137,188.23

FUTURE VALUE AND TIME CHANGES
37. You deposit $3,000 in a retirement account today at 5.5 percent interest. How much more money will you have if you leave the money invested for forty-five years rather than forty years?
   a. $7,714.91
   b. $7,799.08
   c. $7,839.73
   d. $7,846.52
   e. $7,858.19

PRESENT VALUE AND TIME CHANGES
38. When you retire forty years from now, you want to have $1 million. You think you can earn an average of 8.5 percent on your money. To meet this goal, you are trying to decide whether to deposit a lump sum today, or to wait and deposit a lump sum five years from today. How much more will you have to deposit as a lump sum if you wait for five years before making the deposit?
   a. $18,001.06
   b. $18,677.78
   c. $18,998.03
   d. $19,272.81
   e. $21,036.83
39. The more frequently interest is compounded, the _____ interest you will pay on a loan and the _____ interest you will receive on a savings account.
   a. more; more      b. more; less      c. less; less      d. less; more

40. You have two sets of unequal payments which are alike in every respect except that series A pays their payments at the beginning of each period and series B pays their payments at the end of each period. Which one of the following statements is true concerning these two series of payments?
   a. The future value of series B will be greater than the future value of series A.
   b. The net present value of both series of payments are equal.
   c. Series B will pay more payments than series A.
   d. The net present value of series A will be greater than the net present value of series B.

41. You can afford car payments of $180 a month for five years. The interest rate is 3.9 percent, compounded monthly. How much can you afford to borrow to buy a car?
   a. $7,987.81      b. $8,294.39      c. $9,773.83      d. $9,797.82

42. A preferred stock pays annual dividends of $4.00. How much are you willing to pay today to buy one share of this stock if you want to earn a 14 percent rate of return?
   a. $28.57      b. $28.93      c. $29.12      d. $29.40

43. A project will produce cash flows of $3,000, $2,500 and $6,000 a year for the next three years, respectively. What is the value of these cash flows today at a discount rate of 9 percent?
   a. $8,695.25      b. $9,489.59      c. $10,343.66      d. $14,010.42

44. You are going to receive $10,000 at the beginning of each quarter for the next three years. What is the net present value of these payments at a discount rate of 9 percent, compounded quarterly?
   a. $104,147.78      b. $106,491.11      c. $107,921.08      d. $108,887.16

45. What is the effective annual rate of 11.5 percent compounded monthly?
   a. 12.01 percent      b. 12.07 percent      c. 12.13 percent      d. 12.18 percent

46. What is the effective annual rate of 10.25 percent compounded continuously?
   a. 10.51 percent      b. 10.60 percent      c. 10.79 percent      d. 10.89 percent

47. You borrow $200,000 for thirty years at 9 percent. Payments are made monthly beginning one month from the date of the loan. This is an amortized loan. How much of the first payment goes to the principle balance of the loan? Assume that one month is equal to 1/12 of a year.
   a. $109.25      b. $110.67      c. $112.08      d. $114.14

48. You just purchased a 10-year annuity at a cost of $125,000. The annuity will pay you $1,250 on the first of each month, commencing today. What rate of return are you earning on this investment?
   a. 3.77 percent      b. 3.80 percent      c. 3.86 percent      d. 4.01 percent
ORDINARY ANNUITY AND PRESENT VALUE  
49. You just won the lottery! As your prize you will receive $1,200 a month for 100 months. If you can earn 8 percent on your money, what is this prize worth to you today?
   a. $87,003.69  
   b. $87,380.23  
   c. $87,962.77  
   d. $88,104.26  
   e. $90,723.76

ANNUITY DUE AND PRESENT VALUE  
50. You need some money today and the only friend you have that has any is your ‘miserly’ friend. He agrees to loan you the money you need, if you make payments of $20 a month for the next six month. In keeping with his reputation, he requires that the first payment be paid today. He also charges you 1.5 percent interest per month. How much money are you borrowing?
   a. $113.94  
   b. $115.65  
   c. $119.34  
   d. $119.63  
   e. $119.96

ORDINARY ANNUITY VERSUS ANNUITY DUE  
51. You are scheduled to receive annual payments of $10,000 for each of the next 25 years. Your discount rate is 8.5 percent. What is the difference in the present value if you receive these payments at the beginning of each year rather than at the end of each year?
   a. $8,699  
   b. $9,217  
   c. $9,706  
   d. $10,000  
   e. $10,850

ORDINARY ANNUITY AND FUTURE VALUE  
52. What is the future value of $2,400 a year for three years at an 8 percent rate of interest?
   a. $6,185.03  
   b. $6,847.26  
   c. $7,134.16  
   d. $7,791.36  
   e. $8,414.67
ORDINARY ANNUITY PAYMENTS AND PRESENT VALUE
53. You retire at age 60 and expect to live another 27 years. On the day you retire, you have $464,900 in your retirement savings account. You are conservative and expect to earn 4.5 percent on your money during your retirement. How much can you withdraw from your retirement savings each month if you plan to die on the day you spend your last penny?
   a. $2,001.96
   b. $2,092.05
   c. $2,398.17
   d. $2,472.00
   e. $2,481.27

ORDINARY ANNUITY TIME PERIODS AND PRESENT VALUE
54. You are considering an annuity which costs $100,000 today. The annuity pays $6,000 a year. The rate of return is 4.5 percent. What is the length of the annuity time period?
   a. 24.96 years
   b. 29.48 years
   c. 31.49 years
   d. 33.08 years
   e. 38.00 years

ORDINARY ANNUITY INTEREST RATE
55. Your insurance agent is trying to sell you an annuity that costs $100,000 today. By buying this annuity, your agent promises that you will receive payments of $384.40 a month for the next 40 years. What is the rate of return on this investment?
   a. 3.45 percent
   b. 3.47 percent
   c. 3.50 percent
   d. 3.52 percent
   e. 3.55 percent

UNEVEN CASH FLOWS AND PRESENT VALUE
56. You are considering two savings options. Both options offer a 4 percent rate of return. The first option is to save $1,200, $1,500, and $2,000 a year over the next three years, respectively. The other option is to save one lump sum amount today. If you want to have the same balance in your savings at the end of the three years, regardless of the savings method you select, how much do you need to save today if you select the lump sum option?
   a. $4,318.67
   b. $4,491.42
   c. $4,551.78
   d. $4,607.23
   e. $4,857.92
PERPETUITY PRESENT VALUE
57. A 9 percent preferred stock pays an annual dividend of $4.50. What is one share of this stock worth today?
   a. $.41
   b. $4.50
   c. $5.00
   d. $45.00
   e. $50.00

ANNUAL PERCENTAGE RATE
58. You are paying an effective annual rate of 13.8 percent on your credit card. The interest is compounded monthly. What is the annual percentage rate on your account?
   a. 11.50 percent
   b. 12.00 percent
   c. 13.00 percent
   d. 13.80 percent
   e. 14.71 percent

EFFECTIVE ANNUAL RATE
59. 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?
   a. 13.97 percent
   b. 14.90 percent
   c. 15.48 percent
   d. 15.96 percent
   e. 16.10 percent
Answers

1. c
2. a
3. b
4. c
5. a
6. c
7. c
8. b
9. d
10. d
11. b  Current assets for 2005 = $1,300 + $3,600 + $5,100 = $10,000
12. c  Net working capital for 2005 = $1,300 + $3,600 + $5,100 – $2,100 = $7,900
13. c  Stockholders’ equity for 2005 = $9,000 + $4,400 = $13,400
14. a  The non-cash expenses = $1,600 which is the depreciation amount.
15. b  Dividends paid = $6,375 – ($4,400 – $2,900) = $4,875
16. d  Cash flow from operations = $7,900 + $1,600 – $1,125 = $8,375
17. d  Net capital spending = $12,800 – $10,900 + $1,600 = $3,500
18. c  Change in net working capital =  
   ($1,300 + $3,600 + $5,100 – $2,100) – ($1,100 + $3,900 + $5,600 – $3,000) = $300
19. b  Cash flow to creditors = $400 – ($7,300 – $6,800) = –$100 (negative)
20. c  Cash flow to stockholders = $6,375 – ($4,400 – $2,900) – ($9,000 – $8,800) = $4,675
21 b
22 c
23 c
24 a
25. Ending value = $100 + ($100 × .05 × 5) = $125.00

26. d  Alpha Bank: $1,000(1.04)5 - $1,000 = $216.65 compound interest  
Beta Bank: $1,000(.04)(5) = $200.00 simple interest  
Interest on interest paid by Alpha Bank = $216.65 - $200.00 = $16.65

27. a  PV = $10,000[1/(1.08)10] = $4,631.93
   Enter 10 8 10,000
   N I/Y PV PMT FV
   Solve for -4,631.93

28. c  $3,200 = $1,650(1.075)t
   1.93939 = 1.075t
   ln 1.93939 = t(ln 1.075)
   .66238 = .07232t
   t = 9.16
   Enter 7.5 ±1,650 3,200
   N I/Y PV PMT FV
   Solve for 9.16

Shareholders’ equity = $400 + $600 - $400 = $600 (Note: The amount of retained earnings is not provided, so you must use total assets minus total liabilities to derive the correct answer.)
29. a
Enter \(3\), ±1.60, 2.40

\[
N \quad I/Y \quad PV \quad PMT \quad FV
\]
Solve for 14.47

Manual check: \(1.60(1.1447)^3 = 2.40\)

30. c
FV = $10,000(1.0825)^4 = $13,731.30

Enter 4, 8.25, 10,000

\[
N \quad I/Y \quad PV \quad PMT \quad FV
\]
Solve for -13,731.30

31. a
All else equal, the future value will increase as the period of time increases.

32. a
Enter 5, ±10,000, 25,000

\[
N \quad I/Y \quad PV \quad PMT \quad FV
\]
Solve for 20.11244

Manual check: \(10,000(1.2011244)^5 = 25,000\)

Answer is 20.11% (rounded)

33. a
All else equal, the present value will increase as the rate of return decreases.

34. c
FV = $200(1.05)^4 + $400(1.05)^3 + $100(1.05)^1 = $243.10 + $463.05 + $105.00 = $811.15

Enter 4, 5, ±200

\[
N \quad I/Y \quad PV \quad PMT \quad FV
\]
Solve for 243.10

Enter 3, 5, ±400

\[
N \quad I/Y \quad PV \quad PMT \quad FV
\]
Solve for 463.05

Enter 1, 5, ±100

\[
N \quad I/Y \quad PV \quad PMT \quad FV
\]
Solve for 105.00

Total FV = $243.10 + $463.05 + $105.00 = $811.15

35. b
Enter 15, ±1,000, 3,548

\[
N \quad I/Y \quad PV \quad PMT \quad FV
\]
Solve for 8.80919

Manual check: \$1,000(1.0880919)^15 = $3,548.00

Answer is 8.81% (rounded)

36. e
Future value = $500,000 \times (1 + .09)^8 = $996,281.32; Future value = $500,000 \times (1 + .07)^8 = $859,093.09; Difference = $996,281.32 - $859,093.09 = $137,188.23

Enter 8, 9, -500,000

\[
N \quad I/Y \quad PV \quad PMT \quad FV
\]
Solve for 996,281.32

Enter 8, 7, -500,000

\[
N \quad I/Y \quad PV \quad PMT \quad FV
\]
Solve for 859,093.09

37 c
Future value = $3,000 \times (1 + .055)^{45} = $33,379.66; Future value = $3,000 \times (1 + .055)^{40} = $25,539.93; Difference = $33,379.66 - $25,539.93 = $7,839.73
Enter 45 5.5 -3,000
N I/Y PV PMT FV
Solve for 33,379.66

Enter 40 5.5 -3,000
N I/Y PV PMT FV
Solve for 25,539.93

38. d Present value = $1,000,000 \times \left[ \frac{1}{1 + (1 + .085)^{10}} \right] = $38,265.77; Present value = $1,000,000 \times \left[ \frac{1}{1 + (1 + .085)^{35}} \right] = $57,538.58; Difference = $57,538.58 - $38,265.77 = $19,272.81

Enter 40 8.5 1,000,000
N I/Y PV PMT FV
Solve for -38,265.77

Enter 35 8.5 1,000,000
N I/Y PV PMT FV
Solve for -57,538.58

39. a The more frequently interest is compounded, the greater the amount of interest either paid or received.

40. d The sooner payments are received, the greater the net present value.

41. d \[ APV = $180 \times \left\{ 1 - \left[ \frac{1/(1 + .039/12)^{5\times12}}{0.039/12} \right] \right\} \]; APV = $180 \times 54.43234727; APV = $9,797.82

Enter 5\times12 3.9/12 -180
N I/Y PV PMT FV
Solve for 9,797.82

42. a \[ PV = \frac{$4.00}{.14}; PV = $28.57 \]

43. b \[ NPV = \left[ $3,000 \times \frac{1}{(1+.09)^1} \right] + \left[ $2,500 \times \frac{1}{(1+.09)^2} \right] + \left[ $6,000 \times \frac{1}{(1+.09)^3} \right] \]; NPV = $9,489.59

Enter 1 9 3,000
N I/Y PV PMT FV
Solve for -2,752.29

Enter 2 9 2,500
N I/Y PV PMT FV
Solve for -2,104.20

Enter 3 9 6,000
N I/Y PV PMT FV
Solve for -4,633.10
\[
NPV = \$2,752.29 + \$2,104.20 + \$4,633.10 = \$9,489.59
\]

44. b \[A_{due}PV = \$10,000 \times \left(1 - \frac{1}{(1 + \frac{0.09}{4})^{3 \times 4}}\right) \times \left(1 + \frac{0.09}{4}\right) = \$10,000 \times 10.907505 \times 1.0225 = \$106,491.11\]

Enter \[3 \times 4 \quad 9/4 \quad 10,000 \text{BGN}\]
Solve for \[-106,491.11\]

45. c \[EAR = \left[1 + \left(\frac{.115}{12}\right)\right]^{12} - 1; \text{ EAR} = 12.13\%\]

Enter \[11.5 \quad \text{NOM} \quad 12 \quad \text{EFF} \quad \text{C/Y}\]
Solve for \[12.13\]

46. c \[\text{EAR} = e^{0.1025} - 1; \text{ EAR} = 2.71828^{0.1025} - 1; \text{ EAR} = 10.79\%\]

Input for Texas Instruments BA II plus
\[.1025, 2^{\text{nd}}, e^x, -1, =; \text{ EAR} = 10.79\%\]

47. a \[\$200,000 = C \times \left(1 - \frac{1}{(1 + \frac{0.09}{12})^{30 \times 12}}\right) \frac{0.09}{12}; \$200,000 = C \times 124.28187; C = \$1,609.25\]

Enter \[30 \times 12 \quad 9/12 \quad 200,000 \text{BGN}\]
Solve for \[-1,609.25\]

Interest, \[= \$200,000 \times \frac{0.09}{12}; \text{ First month’s interest} = \$1,500.00\]
First month’s principle = \$1,609.25 - \$1,500.00 = \$109.25

48. b \[\$125,000 = \$1,250 \times \left(1 - \frac{1}{(1 + \frac{r}{12})^{10 \times 12}}\right) \times \left(1 + \frac{r}{12}\right); \text{ This can not be solved directly, so it’s easiest to just use the calculator method to get an answer. You can then use the calculator answer taken to several decimal places as the rate in the formula just to verify that you answer is correct.}\]

Enter \[10 \times 12 \quad /12 \quad -125,000 \quad 1,250 \text{BGN}\]
Solve for \[3.80\]
With more decimals, the answer is 3.804162882
49 b

\[ APV = \$1,200 \times \left( 1 - \frac{1}{1 + \frac{\cdot08}{12}} \right)^{100} \]

\[ = \$1,200 \times 72.816858 = \$87,380.23 \]

Enter 100 8/12 1,200
N I/Y PV PMT FV
Solve for -87,380.23

50 b

\[ A_{due\ PV} = 20 \times \left( 1 - \frac{1}{(1 + .015)^{12}} \right) \times (1 + .015) = 20 \times 5.697187165 \times 1.015 = 115.65 \]

Enter 6 1.5 -20BGN
N I/Y PV PMT FV
Solve for 115.65

51 a

\[ APV = 10,000 \times \left( 1 - \frac{1}{(1 + .085)^{25}} \right) \]

\[ = 10,000 \times 10.234191 = 102,341.91 \]

Enter 25 8.5 10,000
N I/Y PV PMT FV
Solve for -102,341.91

\[ A_{due\ PV} = 10,000 \times \left( 1 - \frac{1}{(1 + .085)^{25}} \right) \times (1 + .085) = 10,000 \times 10.234191 \times 1.085 = 111,040.97 \]

Enter 25 8.5 10,000BGN
N I/Y PV PMT FV
Solve for -111,040.97

Difference = $111,040.97 - 102,341.91 = 8,699.06 = $8,699 (rounded)

Note: The difference = .085 \times 102,341.91 = 8,699.06

52 d

\[ AFV = 2,400 \times \left( \frac{(1 + .08)^3 - 1}{.08} \right) = 2,400 \times 3.2464 = 7,791.36 \]

Enter 3 8 2,400
N I/Y PV PMT FV
Solve for -7,791.36
53.

\[ 464,900 = C \times \left( 1 - \frac{1}{1 + \frac{.045}{12}^{27 \times 12}} \right) \] ; \[ 464,900 = C \times \frac{187.3639893}{12} = 2,481.27 \]

Enter \[ 27 \times 12 \quad 4.5/12 \quad 464,900 \]

Solve for \[ 2,481.27 \]

54.

\[ 100,000 = 6,000 \times \left( 1 - \frac{1}{1 + .045}^{t} \right) \] ; ln4 = t ln1.045; t = 31.49

Enter \[ 4.5 \quad -100,000 \quad 6,000 \]

Solve for \[ 31.49 \]

55.

\[ 100,000 = 384.40 \times \left( 1 - \frac{1}{1 + \frac{r}{12}^{40 \times 12}} \right) \] ; 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 you answer is correct.

Enter \[ 40 \times 12 \quad \div 12 \quad -100,000 \quad 384.40 \]

Solve for \[ 3.45 \]

56.

\[ PV = \left[ \frac{1,200}{1.04^1} \right] + \left[ \frac{1,500}{1.04^2} \right] + \left[ \frac{2,000}{1.04^3} \right] \] ; PV = $4,318.67

Enter \[ 1 \quad 4 \quad 1,200 \]

Solve for \[ -1,153.85 \]

Enter \[ 2 \quad 4 \quad 1,500 \]

Solve for \[ -1,386.83 \]

Enter \[ 3 \quad 4 \quad 2,000 \]

Solve for \[ -1,777.99 \]

Present value = $1,153.85 + $1,386.83 + $1,777.99 = $4,318.67

57 e
57. \( PV = \frac{\$4.50}{.09} \); \( PV = \$50.00 \)

58 c

58. \(.138 = \left[ 1 + \left( \frac{APR}{12} \right)^{12} \right] - 1 \); \( APR = 13.00 \) percent

Enter \( 13.8 \) 12 NOM EFF C/Y

Solve for \( 13.00 \)

59 d

59. \( EAR = \left[ 1 + \left( \frac{.149}{12} \right)^{12} \right] - 1 \); \( EAR = 15.96 \) percent

Enter \( 14.9 \) 12 NOM EFF C/Y

Solve for \( 15.96 \)