This document to be located under Header “More Questions”
ALL QUESTIONS 05c.doc

NOTE: THE PROBLEMS SHOWN BELOW WERE GENERATED LARGELY BY AI, AND HAVE NOT BEEN PROOFED TO MAKE SURE THEY HAVE THE 3 NECESSARY TVM ELEMENTS IN ORDER TO BE A SOLVABLE PROBLEM.

First, press the Orange Arrow key, then move your finger down and press the C ALL key.
15. $200 monthly deposits are made into a mutual fund that historically earned an average of 11.25% compounded monthly. What is the value of the account at the end of 7.25 years?

First, press the Orange Arrow key, then move your finger down and press the C ALL key.
16. The DOW (Stock Market) rose from 16,441.35 the beginning of 2014 to 37,715.04 the end of 2023. What is the annual rate of return assuming monthly compounding?

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17. A 1987 advertisement in The New Yorker magazine solicited offers on a 1967 Mercury Cougar XR7 (Motor Trend's 1967 car of the year) that had been stored undriven in a climate controlled environment for 20 years. (At a cost of $900 per year, to be discounted at 4.3% annually.)

If the original owner paid $4000 for this car in 1967, what price would she have to receive in 1987 to obtain a 15% annual return on investment?
(Hint: Add the PV of the storage expenses to the $4,000 original cost of the car to come up with the total PV of the owner’s investment. Then compute for the answer, which is the FV.)

First, press the Orange Arrow key, then move your finger down and press the C ALL key.
18. Vincent Van Gogh sold only one painting during his lifetime, for about $30. It was a sunflower still life he painted in 1888 which sold for $39,850,000 in 1988, more than three times the highest price paid previously for any work of art. If this painting had been purchased for $30 in 1888 and sold in 1988 for $39,850,000, what would have been the annual rate of return, assuming annual compounding?

First, press the Orange Arrow key, then move your finger down and press the C ALL key.
19. How much do you have to deposit at the end of year one to grow to 1 million dollars in 50 years if the growth rate is 10% annually?

First, press the Orange Arrow key, then move your finger down and press the C ALL key.
20. You want to buy a piece of land for $12,000 cash. The owner would allow you to pay for it in six annual installments of $2300 each, the first one right now. Which method is cheaper for you if the time value of money (discount rate) is 6%?

First, press the Orange Arrow key, then move your finger down and press the C ALL key.

21. You decide to put $10,000 in a money market fund that paid an interest rate of 3.2% compounded monthly. You plan to take the money out after one year and pay the income tax on the interest earned. You are in the 25% tax bracket. Find the total amount available to you after taxes.

First, press the Orange Arrow key, then move your finger down and press the C ALL key.
22. Adana Corporation is interested in buying a building for $500,000 in cash, or it may pay for it in 50 monthly installments of $12,000 each. If the discount rate (%i) for Adana is 9% APR, which purchase method should it use?
First, press the Orange Arrow key, then move your finger down and press the C ALL key.
23. Suppose you are borrowing $172,000 as a mortgage loan on a house. The interest rate is 6%. The bank has calculated the payments to be $1,232.26. How long will it take you to pay off the loan?

First, press the Orange Arrow key, then move your finger down and press the C ALL key.
24. Gayle has a credit card with a $500 balance on it and a 24% interest rate. If he is not going to make any additional charges, and wants to pay off his card in two years, what will his monthly payments be? How much interest will he pay?

First, press the Orange Arrow key, then move your finger down and press the C ALL key.
25. Jose and Lupe Sanchez are ready to retire. They want to receive the equivalent of $80,000 in today's dollars at the end of each year for the next 15 years. They assume that inflation will average 3.5% over the long run, and they can earn a 9% annual return on investments. What lump sum do the Sanchez's need to invest today to attain their goal?

First, press the Orange Arrow key, then move your finger down and press the C ALL key.
26. Louise Cannon purchased 200 shares of ABC at $15 per share 7 years ago. (This stock does not pay dividends.) Today she sold all 200 shares for $4,618. What was the average annual compound rate of return on her investment before taxes?

First, press the Orange Arrow key, then move your finger down and press the C ALL key.
27. A couple is planning to build a vacation cottage on property they own in California. Their wealthy friends have offered to loan them $45,000 at 8.25% interest. If they can make payments of $375 each month, how many years will it take them to pay off the loan?

First, press the Orange Arrow key, then move your finger down and press the C ALL key.
28. Peter and Linda Albert are both age 28. They plan to retire at age 67 which will be their FRA (full retirement age) for Social Security retirement benefits. The Albert's have concerns that they could run out of money during retirement as Peter's parents did. They want to assume a post-retirement period of 30 years. With the assistance of their financial planner, they are assuming that to maintain their current lifestyle in retirement, their annual retirement needs as expressed in today's dollars is $80,000. They further assume they will enjoy a 6% after-tax return on their investments and that inflation will average 4% in both their pre-retirement and post-retirement years. What lump-sum dollar amount will the Albert's need to have on hand at the beginning of their retirement period?

First, press the Orange Arrow key, then move your finger down and press the C ALL key.

29. Heath Harrison is a 52-year-old confirmed bachelor. He currently earns $100,000 per year as the manager of a trendy clothing boutique. He anticipates that he will spend 80% of that amount annually when he retires at age 65. He anticipates 28 post-retirement years. His Social Security retirement benefits will provide him with $3,000 per month and will increase with inflation. The assumptions upon which he and his financial planner have agreed is that Heath can earn an after-tax rate of 6% return on his investments and that inflation will average 3.5% during both his pre-retirement and post-retirement years. Considering the information presented in this question, what amount should Heath save at the end of each year to fund his retirement income needs?
First, press the Orange Arrow key, then move your finger down and press the C ALL key.
30. Laura takes a 15 year, $500,000 mortgage, on a new condo. At an interest rate of 6%, what is the monthly payment?

First, press the Orange Arrow key, then move your finger down and press the C ALL key.
31. Steven has $25,000 in credit card debt. His credit card charges 2% in monthly interest and Steven pays $1000 each month toward the balance. If Steven doesn't make any further purchases, how many months will it take to fully repay his debt?

First, press the Orange Arrow key, then move your finger down and press the C ALL key.
32. Martin's savings account has $25,000 today. In five years, the account is worth $32,000. What is the annual interest rate?

First, press the Orange Arrow key, then move your finger down and press the C ALL key.
33. (Complex) You are considering leasing a car. You notice an ad that says you can lease the car you want for $477 per month. The lease term is 60 months with the first payment due at inception of the lease. You must also make an additional down payment of $2,370. The ad also says that the residual value of the vehicle is $20,430. After much research, you have concluded that you could buy the car for a total price of $33,800.
What is the quoted annual interest rate you will pay with the lease?

First, press the Orange Arrow key, then move your finger down and press the C ALL key.
34. Patty wants to buy a used Dakota truck. She is trying to decide between the following deals. She called the bank and they told you they would loan her the money at a 6% interest rate. She visited 3 different used truck lots and they made the following offers:
Deal #1 – Round Rock Motorsports has offered her the truck for $7,500 with the following terms. $500 down and interest only payments of 2% per year for 4 years. At the end of the four years, you pay him the $7,000.
Deal #2 – Dave's Auto Sales has offered her the same truck for $6,500 payable with no money down and the rest in three equal annual payments, which include interest at 4%.
Deal #3 – Garcia's Elite Vehicles has offered her the truck for $6,200 cash.
Which is the best deal?

First, press the Orange Arrow key, then move your finger down and press the C ALL key.

35. (Complex) You have been hired as a financial advisor to Michael Jordan. He has received two offers for playing professional basketball and wants to select the best offer, based on considerations of money only. Offer A is a $10m offer for $2m a year for 5 years. Offer B is a $11m offer of $1m a year for four years and $7m in year 5. What is your advice? (Hint: compare the present value of each contract by assuming an interest rate of, say 8%)

The following problems may be a little more creative.

First, press the Orange Arrow key, then move your finger down and press the C ALL key.
36. Cryptocurrency Adventure:
You invested $500 in a new cryptocurrency ten years ago. The cryptocurrency market has been extremely volatile, with an average annual return of 15%. Calculate the future value of your investment today.

First, press the Orange Arrow key, then move your finger down and press the C ALL key.
37. Inflationary Impact:
Sarah inherited $20,000 from her grandmother a decade ago. She decides to keep the money under her mattress. Over the years, the inflation rate averages 3% annually. Calculate the purchasing power of Sarah's inheritance today.

First, press the Orange Arrow key, then move your finger down and press the C ALL key.
38. Delayed Gratification:
Alex has the opportunity to receive $5,000 now or wait for five years and receive $7,000. If the discount rate is 6%, should Alex choose the immediate cash or wait for the larger sum?

First, press the Orange Arrow key, then move your finger down and press the C ALL key.
39. Working Capital:
A friend wants you to provide working capital for her printing business. She can pay you back in the amount of $10,000 per year for 5 years. If you need to earn 10% APR, how much can you loan her?

First, press the Orange Arrow key, then move your finger down and press the C ALL key.
40. College Savings Challenge:
Emma wants to save $50,000 for her child's college education in 15 years. If she can earn a 7% annual return on her savings, how much should she invest today to reach her goal?

First, press the Orange Arrow key, then move your finger down and press the C ALL key.
41. Retirement Nest Egg:
Tom is planning for retirement and wants to have $1 million saved up in 30 years. If the average annual return on his retirement investments is 9%, how much should he save each month to achieve his goal?

First, press the Orange Arrow key, then move your finger down and press the C ALL key.
42. Home Mortgage Time Warp: (Complex)

John took out a mortgage 20 years ago for $200,000 at an interest rate of 5%. If he could go back and get a lower interest rate of 3% by paying $16,000 up front to buy down the interest rate, how much money would he save on his mortgage payments after subtracting the $16,000 buy down points?

First, press the Orange Arrow key, then move your finger down and press the C ALL key.
43. The Time-Traveling Retirement Fund:
Emily discovers a time machine that allows her to invest money in the past for her retirement. If she invests $1,000 in a retirement fund with an average annual return of 8% 30 years ago, how much will she have in her retirement fund today?
First, press the Orange Arrow key, then move your finger down and press the C ALL key.
44. Retirement Treasure Hunt:
Jake decides to bury a time capsule with a $5,000 savings bond in it and plans to unearth it on his retirement day, 40 years from now. Assuming an annual interest rate of 3%, calculate the future value of Jake's retirement treasure.

First, press the Orange Arrow key, then move your finger down and press the C ALL key.
45. Inflation-Adjusted Retirement Goals:
Maria wants to retire in 25 years with a goal of having the equivalent of $1 million in today's dollar. However, she is concerned about inflation. If the average inflation rate is 3%, what should be Maria's retirement savings goal to maintain the purchasing power of $1 million in today's dollar?

First, press the Orange Arrow key, then move your finger down and press the C ALL key.
46. Retirement Bucket List: (Complex)
Mark is 30 yeas old and has a retirement bucket list of activities that will cost $15,000 per year for 25 years. If he starts saving now until he is 50 years old, with an annual return of 7%, how much should he contribute each year to ensure he can check off every item on his list?

First, press the Orange Arrow key, then move your finger down and press the C ALL key.
47. Retirement Adventure Planning:
Sarah plans to retire in 20 years and wants to travel extensively during retirement. She estimates she will need $500,000 for her dream retirement adventures. If she can achieve a 9% annual return on her investments, how much should she invest each month to reach her goal?

First, press the Orange Arrow key, then move your finger down and press the C ALL key.
48. The Early Retirement Dilemma:
Alex is 17 years old and dreams of retiring early at the age of 45. If he wants to have a nest egg of $1.5 million by then, with an expected annual return of 10%, how much does he need to save each month starting from today?

First, press the Orange Arrow key, then move your finger down and press the C ALL key.
49. Retirement Health Investment:
Jessica is committed to maintaining a healthy and active lifestyle in retirement. She decides to allocate a portion of her retirement savings to health and wellness activities. If she wants to set aside $10,000

per year for 20 years for this purpose, and retire in 30 years, how much should she invest now, assuming a 5% annual return?

First, press the Orange Arrow key, then move your finger down and press the C ALL key.
50. Retirement Income Streams:
Michael is exploring different retirement income streams. If he has accumulated $200,000 today in a diversified portfolio with an average annual return of 8%, how much can he safely withdraw annually for 25 years without running out of money?

The following problems may reinforce the idea of starting early in any savings plan, including retirement.

First, press the Orange Arrow key, then move your finger down and press the C ALL key.
51**.** The Early Bird Advantage:
Sarah and John both plan to retire at age 65. Sarah starts investing $200 per month at age 25, earning an average annual return of 8%. John, on the other hand, starts investing the same amount at age 35. How much more money will Sarah have in her retirement fund compared to John at age 65?

First, press the Orange Arrow key, then move your finger down and press the C ALL key.
52. The Power of Compound Growth:
Chris decides to invest a lump sum of $10,000 in a retirement account at age 30, with an average annual return of 7%. Mark decides to invest the same amount but waits until age 40. Compare the future values of Chris's and Mark's retirement funds at age 65.

First, press the Orange Arrow key, then move your finger down and press the C ALL key.
53. Monthly Savings Magic:
Emma and David both want to have $1 million saved for retirement by age 60. Emma starts saving $500 per month at age 25, while David starts saving the same amount at age 35. Assuming a 6% annual return, calculate how much more money Emma will have at age 60 compared to David.

First, press the Orange Arrow key, then move your finger down and press the C ALL key.
54. The Delayed Decision Dilemma:
Laura realizes the importance of saving for retirement and starts investing $300 per month at age 22. On the other hand, James delays saving until age 32 and invests the same amount. If both earn an average annual return of 9%, compare their retirement account values at age 60.

First, press the Orange Arrow key, then move your finger down and press the C ALL key.
55. College vs. Retirement:
Jessica decides to invest $5,000 per year for 10 years starting from age 25 for her child's education fund, earning an average annual return of 5%. Sarah, however, delays saving for her child's education until age 35, investing the same amount. Compare the future values of their education funds at the end of 10 years.

First, press the Orange Arrow key, then move your finger down and press the C ALL key.

56. Saving for Retirement at 22 and at 30:
Alex plans to save for retirement. He starts at age 22, investing $200 per month with an average annual return of 8%. How much will he have saved by age 65, and how does it compare to someone who starts at age 30 with a fixed monthly contribution of $250?

First, press the Orange Arrow key, then move your finger down and press the C ALL key.
57. The Youthful Windfall:
Tim receives a $5,000 inheritance at age 18 and decides to invest it for retirement, earning an average annual return of 10%. Tom, on the other hand, receives the same inheritance but waits until age 28 to invest it. Compare the future values of Tim's and Tom's investments at age 65.

First, press the Orange Arrow key, then move your finger down and press the C ALL key.
58. The Compounding Birthday Gift:
Sarah's grandparents decide to give her $1,000 on her 18th birthday. She invests it immediately in a retirement account with an average annual return of 6%. If her friend Mike receives the same gift but waits until his 28th birthday to invest, compare the values of their investments at age 65.

The following problem brings up the financial ramifications of going to college, or start working a trade.

First, press the Orange Arrow key, then move your finger down and press the C ALL key.
59. College Debt vs. Trade Earnings: (Complex)
Emma is considering going to a four-year college, and luckily was granted a 0% interest student loan debt of $50,000, while Alex is contemplating entering a trade immediately and earning a starting salary of $40,000 per year. Emma will make $55,000 per year after college. Calculate the number of years it will take Emma to break even with Alex in terms of accumulated earnings, considering her student loan debt and the difference in annual incomes.

First, press the Orange Arrow key, then move your finger down and press the C ALL key.
60. Calculate the interest rate of a loan for $30,000 with 60 monthly payments of $580 each.

The following problem deals with car ownership.

First, press the Orange Arrow key, then move your finger down and press the C ALL key.
61. Insurance Impact:
Sarah is considering a sports car with higher insurance premiums, while Alex is looking at a sedan with lower insurance costs. Calculate the present value difference in insurance expenses over the first 5 years of ownership if the sedan is $50 per month less than the sports car, and the interest rate is 4.3%.

First, press the Orange Arrow key, then move your finger down and press the C ALL key.

62. The Magical Money-Tree:
Tim discovered a magical money-tree that grows by 15% every year. If he plants $100 under the tree, calculate how much money he'll have in 10 years.

First, press the Orange Arrow key, then move your finger down and press the C ALL key.
63. The Pizza Party Paradox:
Jake wants to throw a pizza party in 3 years. If each pizza will cost $10 then, and he saves $20 per month starting now, calculate how many pizzas he can buy for the party, taking into account a 6% annual return on his savings.

First, press the Orange Arrow key, then move your finger down and press the C ALL key.
64. The Extraterrestrial Finance:
Alex received an offer from aliens to invest $100 with them. They promised a 20% annual return but warned him that the investment will only mature in 15 years in Earth time. Calculate how much money he'll have when the investment matures, assuming the aliens keep their word.

First, press the Orange Arrow key, then move your finger down and press the C ALL key.
65. The Future Fashion Fund:
Mia is putting $25 per month into her "Future Fashion Fund." If she starts at age 16 and plans to use the money for a shopping spree at age 20, calculate how much in trendy outfits she can afford with a 7% annual interest rate.

First, press the Orange Arrow key, then move your finger down and press the C ALL key.
66. The Funky Fashion Depreciation: (Complex)
Ryan bought a trendy jacket for $100. If the jacket depreciates in style by 20% each year, calculate how much the jacket will be worth after 3 years and if it will still be considered "cool" in the fashion world.

First, press the Orange Arrow key, then move your finger down and press the C ALL key.
67. The Math Magician's Investment:
Harry, the math magician, decided to invest $50 in a magical investment that grows by 25% annually. If the magic holds for 4 years, calculate how much money Harry will have and if he can teach his investment strategy at Hogwarts.

First, press the Orange Arrow key, then move your finger down and press the C ALL key.
68. The Homework Help Hedge Fund:
Jake is offering homework help services for $10 per hour to save money for a gaming console. If the demand for homework help increases in price by 20% each year, calculate the hourly rate Jake will be receiving in 3 years.

First, press the Orange Arrow key, then move your finger down and press the C ALL key.
69. The Time-Traveling Tech Treasures:
Lily discovers a time-traveling gadget and decides to invest $100 in technology stocks from 15 years ago. If the technology market experiences a 20% annual return, calculate the future value of her investment when she returns to the present.

First, press the Orange Arrow key, then move your finger down and press the C ALL key.
70. The Superhero Savings Plan:
Jack wants to become a superhero and decides to save $100 per month for his superhero costume. If he starts at age 15 and plans to become a hero at age 18, calculate how much money he'll have with a 10% annual return.

First, press the Orange Arrow key, then move your finger down and press the C ALL key.
71. The Hibernating Hobby Hoard:
Jack is investing $15 per week to fund his collection of hibernating hedgehog figurines. If the value increases by 8% annually, calculate how much Jack will have in his hibernation hobby hoard after 3 years of squirrel-like saving.

First, press the Orange Arrow key, then move your finger down and press the C ALL key.
72. "Don't Loan Friends Money":
Scenario: Joe borrows $500 from his friend, Sally. Joe promises to pay her back in one year. However, Joe is a bit of a daydreamer and forgets all about the loan. When he finally remembers after 5 years, he wants to repay Sally. How much should he give her if interest rates are 20% each year?

First, press the Orange Arrow key, then move your finger down and press the C ALL key.
73. "The Fast Food Fiasco":
Scenario: Johnny spends $10 every day on fast food for lunch. His wise friend, Jenny, tells him that if he invests that money at a 5% annual interest rate instead, he can retire early and live on a beach. Johnny decides to give it a try. How many years will it take for Johnny to have $500,000?

First, press the Orange Arrow key, then move your finger down and press the C ALL key.
74. "The Candy Bar Compounder":
Scenario: Bobby loves candy bars, and he buys one every day for $1. If he saves that $1 instead and invests it in a candy bar company that grows by 10% annually, how many years until Bobby has saved $1,000? (Since he saves the $1 daily, use daily compounding for the "%i". So divide the interest rate by the number of days in a year.)

First, press the Orange Arrow key, then move your finger down and press the C ALL key.
75. "The Lost Wallet":
Scenario: Timmy lost his wallet with $100 in it. He's pretty sure it's in his room somewhere, but he's too lazy to look for it. If he waits 5 years to find it, how much money will he have missed out on by not investing it in a 7% interest-earning account?

First, press the Orange Arrow key, then move your finger down and press the C ALL key.
76. "The Time-Traveling Birthday Gift":

Scenario: Emily's grandma gave her a birthday gift of $100 when she was born in 2000. Emily decides not to spend it and keeps it in the bank for 24 years. If interest rates are 4% annually, how much money will she have when she is 24?

First, press the Orange Arrow key, then move your finger down and press the C ALL key.
77. "The Sweepstakes Lesson":
Scenario: Timmy dreams of winning the Publishers Clearinghouse Sweepstakes prize of $1,000,000. However, his math teacher, Mr. Smith, explains that he could become a millionaire by investing just $100 a month in a mutual fund with an 8% annual return. How many years will it take for Timmy to become a millionaire without relying on luck?

The following problems cover various aspects of entrepreneurship, such as investment growth, retirement planning, loan repayment, investor returns, and calculating the ROI (%i) of business decisions. They provide practical applications for the time value of money in entrepreneurial settings.

Entrepreneurship Problems:

First, press the Orange Arrow key, then move your finger down and press the C ALL key.
78**.** Calculating Future Value
An entrepreneur is planning to save $5,000 annually for their new venture. They expect to earn an annual interest rate of 7%. How much will they have after 10 years?

First, press the Orange Arrow key, then move your finger down and press the C ALL key.
79. Determining Present Value of an Investment
An entrepreneur is considering an investment opportunity that promises to pay back $100,000 in 5 years. If their required rate of return is 8%, what is the maximum amount they should invest today?

First, press the Orange Arrow key, then move your finger down and press the C ALL key.
80. Calculating the Required Rate of Return
An entrepreneur needs to figure out the rate of return on an investment that costs $50,000 today and will return $70,000 after 3 years.

First, press the Orange Arrow key, then move your finger down and press the C ALL key.
81. Finding the Number of Periods
An entrepreneur wants to grow their $10,000 investment to $20,000. They expect an annual interest rate of 6%. How long will it take for the investment to reach its goal?

First, press the Orange Arrow key, then move your finger down and press the C ALL key.
82. Calculating Periodic Payments for a Loan
An entrepreneur takes out a $200,000 loan to fund their business. The loan terms include a 5% annual interest rate and it must be paid back in full over 10 years. What are the annual payments?

First, press the Orange Arrow key, then move your finger down and press the C ALL key.
83. The Coffee Conundrum
An entrepreneur is addicted to fancy coffee, spending $5 every day. Realizing this habit is expensive, they decide to invest the daily $5 in a mutual fund with an annual return of 7%. After 10 years of coffee abstinence (and investing), how much will they have saved?

First, press the Orange Arrow key, then move your finger down and press the C ALL key.
84. The Space Tourism Savings Plan
An entrepreneur dreams of space tourism, which currently costs $250,000 for a trip. They estimate that in 15 years, the price will drop by 50% due to advancements in technology. They decide to start saving now. How much do they need to save each month if they expect a 6% annual return on their savings?

First, press the Orange Arrow key, then move your finger down and press the C ALL key.
85. The Viral App Windfall
An entrepreneur develops a mobile app, which unexpectedly goes viral. They earn $10,000 in the first month, and revenues grow at a rate of 5% per month. If this trend continues, how much will the app earn in total over the next year?

First, press the Orange Arrow key, then move your finger down and press the C ALL key.
86. The Exotic Island Retreat Investment
An entrepreneur is planning to invest in an exotic island retreat. They estimate an initial investment of $500,000 and expect the property to appreciate by 10% annually. After 5 years, they plan to sell it. What will be the selling price of the property?

First, press the Orange Arrow key, then move your finger down and press the C ALL key.
87. Funding a Startup with Periodic Investments
An entrepreneur is funding a startup and plans to invest $5,000 at the end of each quarter for the next 3 years. If the investment account earns an annual interest rate of 8% compounded quarterly, what will be the value of the investment at the end of 3 years?

First, press the Orange Arrow key, then move your finger down and press the C ALL key.
88. Saving for a Future Business Expansion
An entrepreneur plans to expand their business in 7 years and estimates needing $500,000. They want to make an initial investment now in a fund that earns 6% annually. How much do they need to invest today to reach their goal?

First, press the Orange Arrow key, then move your finger down and press the C ALL key.

89. Startup Seed Funding Growth
An entrepreneur receives $100,000 in seed funding for their startup. They decide to invest this amount in a high-yield account with an annual interest rate of 10%. They plan to use the funds after 5 years for business expansion. How much will the seed funding grow to by that time?

First, press the Orange Arrow key, then move your finger down and press the C ALL key.
90. Monthly Savings for Entrepreneurial Retirement
An entrepreneur, aged 30, wants to retire at 60 with a retirement fund of $2,000,000. They find an investment plan offering an annual interest rate of 7%, compounded monthly. How much should they save and invest each month to reach this goal?

First, press the Orange Arrow key, then move your finger down and press the C ALL key.
91. Loan Repayment for Business Equipment
An entrepreneur takes a loan of $50,000 to purchase new equipment for their business. The loan terms include a 5% annual interest rate, compounded monthly, and it must be repaid over 4 years. What will be their monthly loan repayment amount?

First, press the Orange Arrow key, then move your finger down and press the C ALL key.
92. Angel Investor's Return on Investment
An angel investor provides $250,000 to a startup in exchange for a 10% stake in the company. Five years later, the company is valued at $10 million. How much is the investor's stake worth now, and what was their annual rate of return?

First, press the Orange Arrow key, then move your finger down and press the C ALL key.
93. Advertising Campaign ROI
An entrepreneur spends $25,000 on an advertising campaign. They expect this will increase monthly revenues by $1,500 for the next 2 years. Assuming a discount rate of 6%, what is the present value of the future additional revenues?

First, press the Orange Arrow key, then move your finger down and press the C ALL key.
94. Loan Balance Any Given Month
How much will the payments on a loan be? What is the loan balance on any given month? (This uses some new keys, which will be explained first.)
a) First, let's calculate a monthly PMT. Suppose you buy a house and get a 30 year loan for $250,000. 6.5% APR. How much is the monthly payment? (Principal and interest only, of course. No taxes, insurance, etc. are included.)

DO NOT CMR before part B. below, because it is a continuation of A.
b) Next, let's calculate the loan balance at year 21, which is month 252. (Enter 252 on the screen, press the "K" key, which is immediately below the "FV" key. Then press 2nd "K". The first number that appears on the screen is the Accumulated ("Acc") interest paid on the loan so far. Next, press the "flip-flop" key, which is in the third full row down on the very left, and looks like this:

After pressing the flip-flop key as described above, the number that appears on the screen is the loan balance ("Bal") immediately after month 252's payment. Pressing it again goes back to "Acc" interest paid on the loan.

First, press the Orange Arrow key, then move your finger down and press the C ALL key.
95. What will a lump sum amount deposited today grow to in the future?
Let's say you put a single deposit of $50 in a savings account that pays 4% APR compounded annually, and leave it in for 10 years. How much will it grow to in the future?

First, press the Orange Arrow key, then move your finger down and press the C ALL key.
96. Monthly savings for down payment on a car
What is the future value of a series of equal payments, or said another way, How much will a series of equal deposits grow to in the future?
Let's say you put $100 monthly in a savings account that pays 3% APR compounded monthly and save for 3 years for a down payment on a car. How much will it grow to in the future?

First, press the Orange Arrow key, then move your finger down and press the C ALL key.
97. How much do you have to save to grow to a certain amount in the future?
Let's say you have decided to save for a great trip you want to take in 5 years that will cost $20,000. Interest rates are 3% APR compounded monthly. How much do you have to save monthly?

First, press the Orange Arrow key, then move your finger down and press the C ALL key.
98. How Much to Loan a Friend's Car Detailing Business?
A friend who is a car detailer plans to expand his business. He wants to buy a trailer, water tank, and some additional equipment. Based on his financial projections, he can make payments to you of $10,000 per year for 4 years. Because such ventures are kind of risky, you need a 25% annual return. How much could you afford to loan your friend today under these terms?

Need to Review the breakdowns below, this is not correct - Problems

1-35- General Problems
36-50- May be a little more creative
50-58- May reinforce the idea of starting to save early for retirement
59- Financial Ramifications of Going to College
61- Car Ownership
78-93- Entrepreneurial
94- Loan Balance