

Hawaii Institute of Tropical Agriculture and Human Resources
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CALCULATING YOUR FINANCES

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The first part of the document discusses the importance of maintaining accurate records of all transactions. It emphasizes that every entry, no matter how small, should be recorded to ensure the integrity of the financial data. This includes not only sales and purchases but also expenses and income. The text suggests that a consistent and thorough record-keeping system is essential for identifying trends and making informed decisions.

Next, the document addresses the issue of budgeting. It explains that a well-defined budget helps in controlling costs and maximizing resources. By setting a clear financial plan, individuals and organizations can avoid overspending and ensure that their financial goals are met. The text provides practical advice on how to create a budget that is realistic and adaptable to changing circumstances.

The third section focuses on the importance of regular financial reviews. It states that periodic assessments of the financial situation allow for the identification of areas where adjustments may be needed. This process involves comparing actual performance against the budget and analyzing the reasons for any variances. The document encourages a proactive approach to financial management, where potential issues are addressed before they become significant problems.

Finally, the document concludes by highlighting the long-term benefits of sound financial practices. It notes that consistent adherence to these principles can lead to increased financial stability and growth. By taking control of their finances, individuals and organizations can build a secure future and achieve their desired objectives. The text serves as a comprehensive guide for anyone looking to improve their financial health and make the most of their resources.

INTRODUCTION

HAVE YOU EVER WANTED TO COMPARE SAVINGS OR INVESTMENT PLANS OFFERING DIFFERENT RATES OF RETURN? PERHAPS YOU HAVE WONDERED WHAT THE MONTHLY PAYMENTS WOULD BE FOR A PARTICULAR LOAN OR MORTGAGE. MAYBE YOU HAVE WANTED TO KNOW HOW LONG IT WOULD TAKE TO ACCUMULATE A DOWN PAYMENT FOR A HOME OR CAR THROUGH A PARTICULAR MONTHLY SAVINGS PLAN. OR PERHAPS YOU HAVE WANTED TO ESTIMATE THE FUTURE VALUE OF A PARTICULAR INVESTMENT OR RETIREMENT PLAN.

THESE AND SIMILAR PROBLEMS CAN BE SOLVED QUICKLY AND EASILY USING A FINANCIAL CALCULATOR. ALTHOUGH CALCULATIONS INVOLVING COMPOUND INTEREST, PERIODIC PAYMENTS, AND DECLINING OR INCREASING BALANCES ARE COMPLEX, A FINANCIAL CALCULATOR MAKES THEM SIMPLE. NOW, REGARDLESS OF YOUR MATHEMATICAL SKILL AND TRAINING, YOU CAN MAKE SUCH CALCULATIONS QUICKLY AND EASILY. THIS WORKBOOK SHOWS YOU HOW.

TOPICS COVERED IN THIS WORKBOOK INCLUDE:

- SECTION 1. THE MEANING OF COMPOUNDING
- SECTION 2. FIGURING INTEREST ON SAVINGS ACCOUNTS
- SECTION 3. FIGURING ACCUMULATED SAVINGS PLANS
- SECTION 4. FIGURING PAYMENT SCHEDULES FROM ACCUMULATED
RETIREMENT SAVINGS OR ANNUITIES
- SECTION 5. FIGURING PAYMENTS ON INSTALLMENT LOANS
- SECTION 6. FIGURING FINANCE CHARGES ON LOANS
- SECTION 7. FIGURING PRINCIPAL BALANCES ON LOANS
- SECTION 8. ESTIMATING FUTURE VALUES OF INVESTMENTS

SECTION 1
THE MEANING OF COMPOUNDING

THE COMPOUNDING OF INTEREST IS IMPORTANT, BECAUSE IT FORMS THE BASIS OF MANY OF TODAY'S FINANCIAL CALCULATIONS. PERHAPS YOU ARE FAMILIAR WITH SUCH BANKING EXPRESSIONS AS "COMPOUNDED QUARTERLY" AND "DAILY COMPOUNDING." THESE EXPRESSIONS MEAN THAT INTEREST IS FIGURED ON PRINCIPAL AS FREQUENTLY AS THE PERIOD MENTIONED AND THAT THIS INTEREST IS THEN ADDED TO THE PREVIOUS PRINCIPAL BEFORE THE NEXT CALCULATION IS MADE. ANNUAL COMPOUNDING MEANS THAT THIS CALCULATION IS MADE ONCE EACH YEAR, AT WHICH TIME THE NEW INTEREST IS ADDED TO THE OLD PRINCIPAL FOR THE NEXT YEAR'S CALCULATION. OTHER COMPOUNDING PERIODS ARE AS FOLLOWS.

COMPOUNDING PERIOD	INTEREST ADDED
SEMI-ANNUAL	TWICE/YEAR
QUARTERLY	FOUR TIMES/YEAR
MONTHLY	TWELVE TIMES/YEAR
DAILY	365 or 360 TIMES/YEAR
CONTINUOUS	CONTINUOUSLY

COMPOUNDING IS IMPORTANT BECAUSE IT INCREASES THE SIZE OF THE PRINCIPAL WHICH IS EARNING INTEREST. THE MORE FREQUENT THE COMPOUNDING PERIOD, THE GREATER IS THE INTEREST EARNED ON A GIVEN BEGINNING PRINCIPAL. HOWEVER, THERE IS A MUCH GREATER DIFFERENCE BETWEEN THE INTEREST EARNED WITH ANNUAL COMPOUNDING VS NO COMPOUNDING AT ALL. AND THERE IS HARDLY ANY DIFFERENCE BETWEEN THE INTEREST EARNED WITH CONTINUOUS COMPOUNDING VS DAILY COMPOUNDING. EXAMPLES ARE PROVIDED ON THE NEXT PAGE.

EXAMPLE 1. THE EFFECT OF COMPOUNDING.

LET US SUPPOSE THAT THERE IS A SAVINGS ACCOUNT OF \$1,000 WHICH WILL BE EARNING AT THE ANNUAL PERCENTAGE RATE OF 8% FOR 6 YEARS. HOW MUCH INTEREST WILL BE EARNED WITH THESE DIFFERENT COMPOUNDING PERIODS? ANSWERS: BELOW.

COMPOUNDING PERIOD	INTEREST EARNED
NO COMPOUNDING	\$480.00
ANNUAL COMPOUNDING	586.87
SEMI-ANNUAL	601.03
QUARTERLY	608.44
DAILY (365)	615.99
CONTINUOUS	616.07

EXAMPLE 2. FIGURING COMPOUND INTEREST.

LET US SUPPOSE THAT THERE IS A SAVINGS ACCOUNT OF \$100 WHICH WILL BE EARNING AT THE ANNUAL PERCENTAGE RATE OF 8%--COMPOUNDED QUARTERLY-- FOR ONE 1 YEAR. HERE IS HOW THE INTEREST EARNED CAN BE FIGURED WITHOUT A CALCULATOR.

FORMULA: INTEREST = PRINCIPAL X RATE X TIME

1ST QUARTER. $\$100.00 \times .08 \times 1/4 = \2.00

2ND QUARTER. $102.00 \times .08 \times 1/4 = 2.04$

3RD QUARTER. $104.04 \times .08 \times 1/4 = 2.08$

4TH QUARTER. $106.12 \times .08 \times 1/4 = 2.12$

TOTAL INTEREST = \$8.24

SECTION 2 FIGURING INTEREST ON SAVINGS ACCOUNTS

FROM EXAMPLE 2 ON PAGE 3, IT IS EVIDENT THAT FIGURING COMPOUND INTEREST REQUIRES SEPARATE CALCULATIONS FOR EVERY COMPOUNDING PERIOD IN THE SAVINGS YEAR. THUS, QUARTERLY COMPOUNDING REQUIRES FOUR CALCULATIONS PER SAVINGS YEAR, AND DAILY COMPOUNDING REQUIRES 365 CALCULATIONS PER SAVINGS YEAR. AS YOU CAN READILY IMAGINE, THE TASK OF MAKING SUCH CALCULATIONS WOULD BE VERY TIME CONSUMING, PARTICULARLY IN THE CASE OF FREQUENT COMPOUNDING PERIODS OR LONG SAVINGS PERIODS. FORTUNATELY, SUCH CALCULATIONS CAN BE MADE QUICKLY AND EASILY WITH A SPECIALLY PROGRAMMED FINANCIAL CALCULATOR.

FINANCIAL CALCULATORS (SOMETIMES CALLED BUSINESS CALCULATORS) ARE PROGRAMMED TO PROVIDE QUICK AND EASY ANSWERS TO COMPLEX SAVINGS, LOAN, AND ANNUITY TYPE PROBLEMS. IN THIS WORKBOOK, THE FORMAT REFERRED TO IS THAT USED BY THE TEXAS INSTRUMENTS BUSINESS ANALYST II. THIS IS DONE SIMPLY FOR CONSISTENCY OF REFERENCE. SIMILAR FORMATS ARE ALSO AVAILABLE ON CALCULATORS MANUFACTURED BY RADIO SHACK, HEWLETT-PACKARD, AND OTHERS. PRICES RANGE FROM APPROXIMATELY THIRTY TO ONE-HUNDRED DOLLARS, AND ALL PERFORM ESSENTIALLY THE SAME FUNCTIONS.

IN THIS SECTION, YOU WILL LEARN TO FIGURE COMPOUND INTEREST ON LUMP SUMS OF MONEY. THIS WILL ENABLE YOU TO:

- A. COMPARE SAVINGS OPTIONS OFFERING DIFFERENT RATES OF INTEREST OR DIFFERENT COMPOUNDING FREQUENCIES
- B. FIGURE THE FUTURE VALUE OF LUMP SUM SAVINGS FOR VARIOUS TIME PERIODS AND VARIOUS INTEREST RATES
- C. FIGURE THE ANNUAL RATE OF RETURN OF VARIOUS SAVINGS AND INVESTMENT OPTIONS WHERE ACTUAL DOLLAR GROWTH IS KNOWN OR ILLUSTRATED

TO BEGIN, LOOK AT THE KEYS ON YOUR FINANCIAL CALCULATOR. SHOWN BELOW ARE THE SPECIAL KEYS USED IN CALCULATING COMPOUND INTEREST ON LUMP-SUM SAVINGS.

2ND

N

%I

PV

FV

THESE KEYS FUNCTION AS FOLLOWS:

2ND

SOLVE FOR. THIS KEY IS PRESSED TO ASK THE CALCULATOR TO SOLVE FOR WHICHEVER KEY IS PRESSED NEXT. PRESS "2ND", PRESS "FV" MEANS TO SOLVE FOR OR CALCULATE THE FUTURE VALUE OF THE PROBLEM ENTERED.

N

NUMBER OF PERIODS. THIS KEY IS PRESSED TO ENTER OR CALCULATE THE TOTAL NUMBER OF COMPOUNDING PERIODS IN THE ENTIRE SAVINGS PERIOD. TO ENTER THE N FOR DAILY COMPOUNDING FOR TWO YEARS, PRESS "730" AND THEN PRESS "N".

%I

INTEREST RATE. THIS KEY IS PRESSED TO ENTER OR CALCULATE THE INTEREST RATE PER COMPOUND PERIOD, CALLED THE PERIODIC PERCENTAGE RATE. TO ENTER AN ANNUAL PERCENTAGE RATE OF 8% WITH A QUARTERLY COMPOUNDING PERIOD, PRESS "8", PRESS "+", PRESS "4", PRESS "=" AND THEN PRESS "%I". NOTE: EVEN IF THE TOTAL SAVINGS PERIOD IS LONGER THAN ONE YEAR, THIS FACT DOES NOT CHANGE THE ANSWER TO THE ABOVE CALCULATION.

PV

PRESENT VALUE. THIS KEY IS PRESSED TO ENTER OR CALCULATE THE VALUE OF THE SAVINGS ACCOUNT AT THE BEGINNING OF THE SAVINGS PERIOD. TO ENTER A BEGINNING AMOUNT OF \$300, PRESS "300" AND THEN PRESS "PV".

FV

FUTURE VALUE. THIS KEY IS PRESSED TO ENTER OR CALCULATE THE VALUE OF THE SAVINGS ACCOUNT AT THE END OF THE SAVINGS PERIOD. TO SOLVE FOR THE VALUE OF A SAVINGS ACCOUNT AT THE END OF THE SAVINGS PERIOD ENTERED, PRESS "2ND" AND THEN PRESS "FV".

SAMPLE PROBLEM 1. COMPARING DIFFERENT SAVINGS OPTIONS.

JOHN AND LISA WOULD LIKE TO COMPARE TWO SAVINGS OPTIONS, ONE OFFERS $5\frac{1}{4}\%$ INTEREST AND DAILY COMPOUNDING AND THE OTHER OFFERS $5\frac{1}{2}\%$ INTEREST AND QUARTERLY COMPOUNDING, THE COUPLE WANTS TO KNOW WHAT THE DIFFERENCE IN EARNINGS WOULD BE ON THEIR \$1,800 IN SAVINGS OVER A PERIOD OF 3 YEARS.

OPTION 1. DAILY COMPOUNDING, $5\frac{1}{4}\%$ INTEREST, \$1,800, 3 YEARS.

N ENTER $365 \times 3 = 1095$. THEN PRESS "N".

%I ENTER $5.25 \div 365 = .01$. THEN PRESS "%I".

PV ENTER 1800. THEN PRESS "PV".

FV SOLVE FOR FUTURE VALUE. PRESS "2ND" THEN PRESS "FV".

ANSWER: $FV = 2107.02$.

INTEREST EARNED EQUALS $2107.02 - 1800 = \$307.02$.

OPTION 2. QUARTERLY COMPOUNDING, $5\frac{1}{2}\%$ INTEREST, \$1,800, 3 YEARS.

N ENTER ____ $\times 3 =$ ____ . THEN PRESS "N"

%I ENTER $5.50 \div$ ____ $=$ ____ . THEN PRESS "%I".

PV ENTER ____ . THEN PRESS "PV".

FV SOLVE FOR FUTURE VALUE. PRESS "___" THEN PRESS "___".

ANSWER: $FV = 2120.52$.

INTEREST EARNED EQUALS ____ $- 1800 =$ ____ .

IN COMPARING THE TWO OPTIONS, JOHN AND LISA FOUND THAT OPTION 2 EARNED MORE INTEREST THAN OPTION 1. THE DIFFERENCE AMOUNTED TO \$13.50. WHAT WOULD THE DIFFERENCE BE AFTER 9 YEARS? WHAT WOULD THE DIFFERENCE BE FOR \$30,000 IN SAVINGS?

SAMPLE PROBLEM 2. FIGURING THE FUTURE VALUE OF SAVINGS.

KAREN HAS \$20,000 IN SAVINGS THAT SHE COULD USE AS A DOWN PAYMENT ON A CONDOMINIUM. BEFORE SHE MAKES A DECISION TO INVEST IN A CONDOMINIUM, HOWEVER, SHE WANTS TO KNOW HOW MUCH HER \$20,000 WOULD GROW IN 30 YEARS AT 10% INTEREST COMPOUNDED QUARTERLY.

NOW THAT YOU HAVE BECOME MORE FAMILIAR WITH YOUR CALCULATOR, THE CALCULATOR ENTRIES WILL BE PRESENTED IN A WAY WHICH IS EASIER TO READ AT A GLANCE. USING THE INFORMATION PRESENTED, FOLLOW THE SAME PROCEDURE AS PRESENTED ON PAGE 6.

<u> </u> N	<u> </u> %I	<u> </u>	<u> </u> PV	<u> </u> FV
4 X 30	10/4		20000	?

ANSWER: \$387,162.99. WHAT WOULD THE ANSWER BE FOR DAILY COMPOUNDING. MAKE ENTRIES BELOW THEN FIGURE.

<u> </u> N	<u> </u> %I	<u> </u>	<u> </u> PV	<u> </u> FV
				?

ANSWER: _____.

SAMPLE PROBLEM 3. FIGURING THE ANNUAL RATE OF RETURN.

JEAN AND YUKI BOUGHT THEIR HOUSE FOR \$35,000 26 YEARS AGO. NOW THE HOUSE IS VALUED AT \$125,000. THE COUPLE WOULD LIKE TO KNOW WHAT THE ANNUAL RATE OF APPRECIATION HAS BEEN.

<u> </u> N	<u> </u> %I	<u> </u>	<u> </u> PV	<u> </u> FV
1 X 26	?		35000	125000

ANSWER: _____, WHAT IS THE ANSWER FOR YOUR HOUSE?

**SECTION 3
FIGURING ACCUMULATED SAVINGS PLANS**

PERHAPS YOU HAVE BEEN WONDERING ABOUT THE KEY BETWEEN "%I" AND "PV" LABELED "PMT" ON YOUR CALCULATOR. THIS KEY IS USED IN FINANCIAL PROBLEMS WHICH INVOLVE REGULAR PERIODIC PAYMENTS, SUCH AS MONTHLY SAVINGS PLANS OR INSTALLMENT LOANS. IN THIS SECTION, THE FOCUS WILL BE ON FIGURING SAVINGS PLANS WHICH INVOLVE REGULAR PERIODIC CONTRIBUTIONS.

SAMPLE PROBLEM 4. FIGURING ACCUMULATION OF SAVINGS.

LINDA AND SAM BELIEVE THAT THEY CAN LIVE ON SAM'S SALARY AND SAVE LINDA'S SALARY FOR THE NEXT 5 YEARS. THEY PLAN TO PUT LINDA'S \$600 PER MONTH INTO A MUTUAL FUND EARNING 9¼% WITH MONTHLY COMPOUNDING. THE COUPLE WOULD LIKE TO KNOW HOW MUCH THEY WILL HAVE IN THIS ACCOUNT AT THE END OF 5 YEARS.

N	%I	PMT	_____	FV
12 X 5	9.25/12	600	_____	?

NOTE: PRESS "2ND" TO SOLVE FOR END OF MONTH PAYMENTS, AND PRESS "DUE" TO SOLVE FOR BEGINNING OF MONTH PAYMENTS.

ANSWERS: \$45,552.67 FOR END OF MONTH PAYMENTS,
\$45,903.80 FOR BEGINNING OF MONTH PAYMENTS.

PRACTICE: HOW MUCH WOULD LINDA AND SAM HAVE IN THE ACCOUNT AFTER 10 YEARS? MAKE ENTRIES BELOW.

N	%I	PMT	_____	FV
_____	_____	_____	_____	_____

ANSWERS: _____ FOR END OF MONTH PAYMENTS,
_____ FOR BEGINNING OF MONTH PAYMENTS.

SAMPLE PROBLEM 5. FIGURING ACCUMULATION TIME PERIODS.

APRIL AND PAUL WANT TO ACCUMULATE \$15,000 IN SAVINGS FOR A DOWN PAYMENT ON THEIR FIRST HOUSE. THE COUPLE INTENDS TO SET ASIDE \$300 PER MONTH IN A SAVINGS FUND OFFERING 8% APR (ANNUAL PERCENTAGE RATE) COMPOUNDED MONTHLY. THEY WOULD LIKE TO KNOW HOW LONG IT WILL TAKE TO REACH THEIR GOAL.

<u>N</u>	<u>%I</u>	<u>PMT</u>	<u> </u>	<u>FV</u>
?	8/12	300		15000

ANSWER: 43.05 MONTHS, 3 YEARS AND 7 MONTHS, USING "DUE" KEY FOR BEGINNING OF MONTH PAYMENTS.

PRACTICE: HOW LONG WOULD IT TAKE APRIL AND PAUL TO BECOME MILLIONAIRES WITH THIS SAVINGS PLAN?

<u>N</u>	<u>%I</u>	<u>PMT</u>	<u> </u>	<u>FV</u>
?	8/12	300		1000000

ANSWER: _____ MONTHS, ____ YEARS AND _____ MONTHS, USING THE "DUE" KEY ONCE AGAIN.

PRACTICE: HOW LONG WOULD IT TAKE APRIL AND PAUL TO ACCUMULATE \$15,000 AT 10% APR COMPOUNDED MONTHLY?

<u>N</u>	<u>%I</u>	<u>PMT</u>	<u> </u>	<u>FV</u>
?		300		15000

ANSWER: _____ MONTHS, ____ YEARS AND _____ MONTHS, USING "DUE" KEY FOR BEGINNING OF MONTH PAYMENTS.

SECTION 4
FIGURING PAYMENT SCHEDULES FROM ACCUMULATED
RETIREMENT ANNUITIES OR SAVINGS

MUCH OF RETIREMENT PLANNING FOCUSES ON THE ACCUMULATION OF A "NEST EGG" FOR RETIREMENT. ANOTHER ASPECT OF EQUAL IMPORTANCE, HOWEVER, IS THE DISTRIBUTION OF THAT "NEST EGG" FROM A LUMP SUM ACCOUNT TO A STREAM OF MONTHLY OR QUARTERLY INCOME PAYMENTS. THIS SECTION DEMONSTRATES HOW TO CALCULATE PAYMENTS AND SCHEDULES OF PAYMENTS FROM ACCUMULATED SUMS OF INTEREST EARNING MONEY. SUCH INFORMATION IS IMPORTANT NOT ONLY IN PLANNING FOR THE ACCUMULATION OF AN ADEQUATE "NEST EGG" BUT ALSO FOR HANDLING ITS INVESTMENT AND DISTRIBUTION DURING THE ACTUAL RETIREMENT PERIOD.

SAMPLE PROBLEM 6. FIGURING PAYMENTS FROM AN ACCUMULATED SUM.

HELENE'S HUSBAND DIED LAST YEAR, LEAVING HER WITH SAVINGS OF \$10,000, A LIFE INSURANCE BENEFIT OF \$15,000, AND A HOME AND PROPERTY EQUITY OF \$90,000. HELENE IS RETIRED AND INTENDS TO USE THIS MONEY AS A SOURCE OF INCOME. SHE HAS ALREADY PLACED ALL OF THE MONEY FROM THESE VARIOUS SOURCES INTO ONE ACCOUNT OFFERING 12% APR COMPOUNDED MONTHLY. NOW SHE WANTS TO KNOW HOW MUCH MONTHLY INCOME SHE CAN EXPECT IF THE MONEY MUST LAST HER 20 YEARS.

N	%I	PMT	PV	_____
12X20	12/12	?	115000	

ANSWER: \$1,266.25.

PRACTICE: IF HELENE NEEDED PAYMENTS OF \$2,000 PER MONTH, HOW LONG WOULD HER \$115,000 LAST?

N	%I	PMT	PV	_____
?				

ANSWER _____ . (10)

SAMPLE PROBLEM 7. FIGURING RETIREMENT PAYMENT SCHEDULES.

BUNNY AND ED HAVE ACCUMULATED \$75,000 IN SAVINGS FOR THEIR RETIREMENT AND HAVE INVESTED IT IN AN ACCOUNT PAYING 8% APR COMPOUNDED MONTHLY. THE COUPLE WOULD LIKE TO KNOW HOW MUCH MONEY PER MONTH THEY COULD WITHDRAW FROM THIS ACCOUNT IF THE PAYMENTS WERE TO LAST 10 YEARS, 15 YEARS, 20 YEARS, OR 25 YEARS.

<u>N</u>	<u>%I</u>	<u>PMT</u>	<u>PV</u>	<u>_____</u>
12X10	8/12	?	75000	
12X15	8/12	?	75000	
12X20	8/12	?	75000	
12X25	8/12	?	75000	

ANSWERS: NUMBER OF YEARS PAYMENT PER MONTH

	10	\$909.95
	15	\$716.74
	20	\$627.33
	25	\$578.86

PRACTICE: IF BUNNY AND ED, HAD \$120,000 IN THEIR RETIREMENT ACCOUNT, HOW LONG WOULD MONTHLY PAYMENTS OF \$800, \$1200, AND \$1600 LAST?

<u>N</u>	<u>%I</u>	<u>PMT</u>	<u>PV</u>	<u>_____</u>
?	8/12	800	120000	
?	8/12	1200	120000	
?	8/12	1600	120000	

ANSWERS: PAYMENT PER MONTH NUMBER OF YEARS

	\$800	_____
	\$1200	_____
	\$1600	_____

SECTION 5
FIGURING PAYMENTS ON INSTALLMENT LOANS

A PROMINENT BANKER ONCE REVEALED THAT IN HIS EXPERIENCE MOST CUSTOMERS HAD ONLY TWO QUESTIONS CONCERNING LOANS: HOW MUCH CAN I BORROW? AND WHAT ARE THE MONTHLY PAYMENTS? THIS SECTION FOCUSES ON THE FIGURING OF PAYMENTS AND LOANS WITH REGARD TO SUCH INSTALLMENT PURCHASES AS THOSE REPRESENTED BY CARS AND HOUSES. THE ABILITY TO FIGURE INSTALLMENT LOANS IS IMPORTANT IN ESTABLISHING GUIDELINES FOR AFFORDABILITY, WHICH CAN BE USED EFFECTIVELY IN GUIDING THE SHOPPING AND PURCHASING PROCESS. TOO OFTEN CONSUMERS ENTER THE MARKETPLACE WITH LITTLE KNOWLEDGE OF THE PURCHASE AND MONTHLY PAYMENT PRICES THEY CAN AND REASONABLY INTEND TO AFFORD.

SAMPLE PROBLEM 8. FIGURING CAR LOAN PAYMENT SCHEDULES.

JAN IS IN THE MARKET FOR A NEW CAR. SHE HAS A \$2,000 DOWN PAYMENT AND AN APPROVAL ON A 48 MONTH, 16% APR CAR LOAN AT HER CREDIT UNION. MOST OF THE CARS THAT SHE LIKES RANGE IN PRICE FROM \$7,200 TO \$9,200. JAN WOULD LIKE TO KNOW WHAT THIS PRICE RANGE MEANS IN TERMS OF MONTHLY PAYMENTS.

<u>N</u>	<u>%I</u>	<u>PMT</u>	<u>PV</u>	<u>ANSWERS</u>
48	16/12	?	5200	<u>\$147.37</u>
48	16/12	?	5700	_____
48	16/12	?	6200	_____
48	16/12	?	6700	_____
48	16/12	?	7200	_____

ANSWERS: HELP JAN BY FINISHING THE LIST OF ANSWERS. HOW COULD THIS LIST OR JAN'S CALCULATOR HELP HER CAR SHOP MORE EFFECTIVELY?

SAMPLE PROBLEM 9. FIGURING MORTGAGE LOANS.

BETTY AND RICK ARE READY TO BUY THEIR FIRST HOUSE. THEY HAVE A \$10,000 DOWN PAYMENT, AND THEY QUALIFY FOR A 12½% FIXED RATE, 30 YEAR MORTGAGE LOAN. THEY ALSO HAVE A RANGE OF MONTHLY MORTGAGE PAYMENTS THAT THEY THINK THEY WOULD FIND ACCEPTABLE. THE RANGE GOES FROM \$450 PER MONTH, WHICH THEY COULD HANDLE RATHER EASILY, TO \$850 PER MONTH, WHICH THEY COULD HANDLE BUT WITH SOME DIFFICULTY. BUT BEFORE THEY GET TOO INTERESTED IN ANY PARTICULAR HOUSE, THEY WOULD LIKE TO KNOW THE RANGE OF THE MORTGAGE LOANS ASSOCIATED WITH THESE MONTHLY PAYMENTS.

<u>N</u>	<u>%I</u>	<u>PMT</u>	<u>PV</u>	<u>ANSWERS</u>
12X30	12.5/12	450	?	\$42,164.13
12X30	12.5/12	550	?	_____
12X30	12.5/12	650	?	_____
12X30	12.5/12	750	?	_____
12X30	12.5/12	850	?	_____

ANSWERS: HELP BETTY AND RICK BY FINISHING THE LIST OF ANSWERS FOR THEM. WHAT WOULD BE THE MOST EXPENSIVE HOUSE FOR BETTY AND RICK TO CONSIDER?

SAMPLE PROBLEM 10. COMPARING PURCHASING OPTIONS.

AL KNOWS TWO DEALERS IN TOWN WHO HAVE THE EXACT SAME CAR FOR SALE THAT HE WANTS. ONE DEALER WANTS \$9,500 FOR THE CAR, BUT HE OFFERS 11% DEALER FINANCING. THE OTHER DEALER WANTS \$8,700 FOR THE CAR BUT OFFERS NO SPECIAL FINANCING. AL HAS A \$1,000 DOWN PAYMENT AND CAN OBTAIN BANK FINANCING AT 15% APR. AL WANTS TO KNOW WHICH DEAL WOULD BE LEAST EXPENSIVE ON A 48 MONTH CAR LOAN ON THE BALANCE OF THE PURCHASE PRICE.

<u>N</u>	<u>%I</u>	<u>PMT</u>	<u>PV</u>	<u>ANSWERS</u>
48	_____	?	8500	_____
48	_____	?	7700	_____

ANSWERS: MAKE ENTRIES AND CALCULATE. WHICH WOULD BE THE LEAST EXPENSIVE DEAL AND BY HOW MUCH?

SECTION 6
FIGURING FINANCE CHARGES ON LOANS

IN ORDER TO MAKE INFORMED DECISIONS REGARDING LOANS, IT IS IMPORTANT TO BE ABLE TO COMPARE FINANCE CHARGES IN MEANINGFUL TERMS--USUALLY IN DOLLARS AND CENTS. BY LAW, IN FACT, FINANCE CHARGES ON ALL CONSUMER LOANS MUST BE WRITTEN IN DOLLARS AND CENTS ON THE LOAN CONTRACT. THE PROBLEM FOR CONSUMERS, HOWEVER, IS THAT THIS INFORMATION IS MOST NEEDED IN SHOPPING FOR FINANCING--BEFORE ANY CONTRACT HAS BEEN DRAWN UP OR WITNESSED. THIS SECTION FOCUSES ON FIGURING AND COMPARING THE COSTS OF LOANS IN TERMS OF DOLLARS AND CENTS.

SAMPLE PROBLEM 11. FIGURING FINANCE CHARGES ON LOANS.

JERRY IS INTERESTED IN BUYING A USED CAR THAT THE OWNER WANTS \$2,800 FOR. JERRY HAS \$800 IN SAVINGS AND COULD SAVE THE REST BY THE END OF SUMMER. AT THAT TIME HE COULD EITHER BUY THIS CAR, IF THE OWNER STILL HAS IT, OR ONE IN THE SAME PRICE RANGE. HE COULD ALSO DECIDE TO BUY THE CAR NOW BY BORROWING \$2,000 AT HIS CREDIT UNION. THE LOAN WOULD BE FOR 24 MONTHS AT 17% APR. BEFORE JERRY DECIDES, HE WANTS TO KNOW EXACTLY HOW MUCH THE LOAN WILL COST HIM IN DOLLARS AND CENTS.

N	%I	PMT	PV	ANSWER
24	17/12	?	2000	\$98.88

ANSWER: TO FIND THE COST OF THE LOAN, MULTIPLY THE MONTHLY PAYMENT BY THE NUMBER OF PAYMENTS AND THEN SUBTRACT THE AMOUNT BORROWED.

$$(98.88 \times 24) - 2000 = \$373.12$$

PRACTICE: WHAT WOULD THE COST OF THE LOAN BE IF THE SAME AMOUNT WERE BORROWED FOR 36 MONTHS?

ANSWER: _____

SAMPLE PROBLEM 12. COMPARING FINANCE CHARGES.

DENNIS AND ANN WANT TO BUY A HOME OF THEIR OWN. CURRENTLY MORTGAGE LOANS ARE BEING OFFERED AT 13% APR, BUT THERE IS STRONG EXPECTATION THAT RATES WILL DECLINE TO 12% APR BY THE END OF THE YEAR. THE COUPLE WILL PROBABLY APPLY FOR A CONVENTIONAL, FIXED RATE, 30 YEAR MORTGAGE IN THE AMOUNT OF APPROXIMATELY \$80,000. WHAT THEY WANT TO KNOW IS HOW MUCH THE DIFFERENCE IN THE TWO LOAN RATES WILL AFFECT THEIR MONTHLY PAYMENT AND THE TOTAL FINANCE CHARGE.

<u>N</u>	<u>%I</u>	<u>PMT</u>	<u>PV</u>	<u>ANSWERS</u>
12X30	13/12	?	80000	\$884.96
12X30	12/12	?	80000	\$822.89

ANSWERS:

AT 13%. $(884.96 \times 360) - 80000 = \$238,585.60$

AT 12%. $(822.89 \times 360) - 80000 = \$216,240.40$

DIFFERENCE IN MONTHLY PAYMENT EQUALS \$62.07.

DIFFERENCE IN TOTAL FINANCE CHARGE EQUALS \$22,345.20.

PRACTICE: JESSIE WANTS TO PURCHASE A NEW CAR PRICED AT \$10,500. SHE CAN OBTAIN FINANCING AT 16% FOR 60 MONTHS ON WHATEVER BALANCE SHE CHOOSES. SHE IS THINKING OF MAKING A DOWN PAYMENT OF EITHER \$2,000 OR \$3,000. WHAT SHE WANTS TO KNOW IS HOW MUCH MORE THE LOWER DOWN PAYMENT WILL COST IN FINANCE CHARGES.

<u>N</u>	<u>%I</u>	<u>PMT</u>	<u>PV</u>	<u>ANSWERS</u>
_____	_____	?	_____	_____
_____	_____	?	_____	_____

ANSWERS:

DIFFERENCE IN MONTHLY PAYMENT EQUALS _____.

DIFFERENCE IN TOTAL FINANCE CHARGE EQUALS _____.

SECTION 7
FIGURING PRINCIPAL BALANCES ON LOANS

THE ABILITY TO FIGURE THE PRINCIPAL BALANCE ON A LOAN CAN BE VERY USEFUL IN A VARIETY OF FINANCIAL SITUATIONS. IT CAN BE USED TO DETERMINE PERSONAL NET WORTH, CHECK FOR ERRORS ON LOAN ACCOUNTS, PLAN FOR THE SALE OF PROPERTY, OR DECIDE BETWEEN ALTERNATIVES IN FINANCING. THE PRINCIPAL BALANCE IS THE AMOUNT OF A LOAN WHICH REMAINS OUTSTANDING OR UNPAID AT A GIVEN POINT IN TIME. THUS, IT IS A KEY PIECE OF INFORMATION IN FINANCIAL PLANNING. THIS SECTION FOCUSES ON FIGURING PRINCIPAL BALANCES AND RELATED FACTORS.

SAMPLE PROBLEM 13. FIGURING PRINCIPAL BALANCES.

WHEN JENNIFER MOVED TO TOWN 8 MONTHS AGO, SHE TOOK OUT A \$1,300 FURNITURE LOAN AT 18% APR WITH 24 MONTHS TO REPAY. NOW SHE WOULD LIKE TO PAY OFF THE LOAN IN FULL TO AVOID ANY MORE FINANCE CHARGES. SHE WILL SEND IN HER 8TH MONTHLY PAYMENT THIS WEEK ACCORDING TO HER SCHEDULE OF PAYMENTS. SHE WANTS TO KNOW HOW MUCH MORE SHE WOULD HAVE TO SEND IN AT THIS TIME TO PAY OFF THE LOAN IN FULL.

N	%I	PMT	PV	ANSWER
24	18/12	?	1300	\$64.90

ANSWER: FIRST. MAKE ENTRIES AND SOLVE FOR "PMT."

SECOND. FOR EACH PAYMENT MADE, PRESS THE NUMBER OF THE PAYMENT, THEN PRESS "2ND", THEN PRESS "P/I".

THIRD. ADD THE SUM OF THE ANSWERS GIVEN FOR EACH PAYMENT IN THE STEP ABOVE AND SUBTRACT THIS SUM FROM THE ORIGINAL LOAN AMOUNT. THIS AMOUNT IS THE PRINCIPAL BALANCE TO BE REPAID AFTER 8 PAYMENTS.

NOTE: THE "P/I" KEY PRESSED AFTER "2ND" PROVIDES THE AMOUNT OF THE PAYMENT GOING TOWARD PRINCIPAL. PRESS "P/I" AGAIN FOR AMOUNT OF PAYMENT GOING TOWARDS INTEREST.

<u>PAYMENT NUMBER</u>	<u>PRINCIPAL PAID</u>	<u>INTEREST PAID</u>
1	\$ 45.40	\$ 19.50
2	46.08	18.82
3	46.77	18.13
4	47.48	17.42
5	48.19	16.71
6	48.91	15.99
7	49.64	15.26
8	50.39	14.51
	<u> </u>	
	\$382.86	

PRINCIPAL BALANCE UNPAID

$$\$1,300 - \$382.86 = \$917.14$$

SAMPLE PROBLEM 14. FIGURING ACCRUED INTEREST AND PRINCIPAL.

BECAUSE INTEREST PAID ON LOANS QUALIFIES AS AN ITEMIZED TAX DEDUCTION, JENNIFER IS THINKING OF CONTINUING HER LOAN PAYMENTS UNTIL THE END OF THE YEAR, WHICH WILL INCLUDE HER 12TH PAYMENT, THIS TIME SHE WANTS TO KNOW HOW MUCH TOTAL INTEREST SHE WILL HAVE PAID WITH HER TWELVE PAYMENTS, TO DO THIS, SHE ENTERS THE PROBLEM AS BEFORE AND SOLVES FOR "PMT", THEN SHE USES THE FOLLOWING SHORTCUT TO OBTAIN HER INFORMATION.

ANSWER: FIRST, ENTER NUMBER OF PAYMENTS MADE, 12.

SECOND, PRESS "2ND" AND THEN PRESS "ACC/BAL".
THIS IS JENNIFER'S ANSWER, \$186.73.

NOTE: IF YOU PRESS "P/I" NEXT, RIGHT AFTER PRESSING "ACC/BAL", THE DISPLAY WILL SHOW THE REMAINING PRINCIPAL BALANCE. FOR JENNIFER THE ANSWER IS \$707.91.

PRACTICE: FIGURE THE AMOUNT OF INTEREST JENNIFER WOULD PAY DURING THE SECOND YEAR OF THE LOAN.
HINT: YOU KNOW THE AMOUNT FOR THE FIRST YEAR. FIGURE THE AMOUNT FOR 24 PAYMENTS AND THEN SUBTRACT ONE FROM THE OTHER.

SECTION 8
ESTIMATING THE FUTURE VALUES OF INVESTMENTS

HOW MUCH WILL A DOLLAR BE WORTH IN THE YEAR 2000? NO ONE KNOWS FOR SURE, BUT YEARS OF INFLATIONARY HISTORY WOULD SEEM TO INDICATE RATHER STRONGLY THAT "TODAY'S" DOLLARS WILL PROBABLY BE WORTH A GREAT DEAL LESS IN THE YEAR 2000. INFLATION IS MOST RECOGNIZED FOR ITS ROLE IN ERODING PURCHASING POWER THROUGH HIGHER PRICES. BUT IT TENDS TO BE LESS RECOGNIZED FOR ITS ROLE IN DISTORTING FINANCIAL PLANS AND EXPECTATIONS. PLANS AND EXPECTATIONS REGARDING PENSIONS, ANNUITIES, RETIREMENT ACCOUNTS, AND VARIOUS FORMS OF LIFE INSURANCE ARE PARTICULARLY DISTORTED BY INFLATION FOR SEVERAL REASONS: (1) PAYMENTS-IN ARE MUCH MORE EXPENSIVE THAN GENERALLY RECOGNIZED, BECAUSE THEY ARE MADE WITH "TODAY'S" DOLLARS; (2) INTEREST RATE FACTORS ARE GENERALLY MUCH MORE MODEST IN THEIR EFFECT THAN GENERALLY RECOGNIZED, BECAUSE THEY ARE MITIGATED BY AN ERODING INFLATIONARY RATE; AND (3) PAYOFFS OR PAYMENTS-OUT ARE INVARIABLY MADE WITH LESS EXPENSIVE "FUTURE" DOLLARS, WHICH HAVE FAR LESS PURCHASING POWER THAN EXPECTED, PLANNED, OR ILLUSTRATED DURING THE SALES PROCESS. THIS SECTION FOCUSES ON ESTIMATING THE FUTURE VALUES OF INVESTMENTS WITHIN THE CONTEXT OF AN INFLATIONARY ECONOMY.

SAMPLE PROBLEM 15. ESTIMATING FUTURE ANNUITY VALUES.

IRENE AND JIM STARTED A RETIREMENT ANNUITY SEVENTEEN YEARS AGO. ACCORDING TO THIS ANNUITY, THEY WILL RECEIVE GUARANTEED PAYMENTS OF \$1,000 PER MONTH FOR 12 YEARS BEGINNING AT AGE 65. SINCE JIM WILL TURN 65 IN 5 YEARS, HE WANTS TO HAVE SOME IDEA OF WHAT THE \$1,000 PER MONTH WILL MEAN IN TODAY'S PURCHASING POWER AT THE BEGINNING OF HIS RETIREMENT.

ANSWER: FIRST, ASSUME A RANGE OF MOST PROBABLE INFLATION RATES, FROM LOWEST MOST PROBABLE RATE TO HIGHEST MOST PROBABLE RATE.

SECOND. MAKE CALCULATOR ENTRIES AS SHOWN AND SOLVE FOR "FV".

<u>N</u>	<u>%I</u>	<u>PV</u>	<u>FV</u>	<u>ANSWERS</u>
5	4	1000	?	\$1216.65
5	7	1000	?	\$1402.55
5	10	1000	?	\$1610.51

ANSWER: THE ANSWERS GIVEN INDICATE THE DOLLAR AMOUNT THAT WILL BE NEEDED IN 5 YEARS TO PURCHASE WHAT \$1,000 WILL PURCHASE TODAY. THE RATES USED REPRESENT AVERAGE, ANNUALLY COMPOUNDED INFLATION RATES AS PROJECTED BY IRENE AND JIM.

TO FIGURE HOW MUCH THE \$1,000 WOULD BUY AT A FUTURE TIME IN TERMS OF TODAY'S DOLLARS, DO THE FOLLOWING: DIVIDE THE "PV" VALUE BY THE "FV" VALUE AND THEN MULTIPLY THE ANSWER TO THIS BY THE "PV" VALUE.

$$(1000 \div 1216.65) \times 1000 = \$821.93$$

$$(1000 \div 1402.55) \times 1000 = \$721.99$$

$$(1000 \div 1610.51) \times 1000 = \$620.92$$

PRACTICE: IRENE AND JIM WOULD ALSO LIKE TO KNOW WHAT THEIR \$1,000 PER MONTH PAYMENTS WILL BE WORTH AT THE END OF 10 YEARS OF RETIREMENT OR 15 YEARS FROM THE PRESENT TIME. MAKE THE APPROPRIATE ENTRIES AND CALCULATIONS FOR THEM.

<u>N</u>	<u>%I</u>	<u>PV</u>	<u>FV</u>	<u>ANSWERS</u>
15	4	1000	?	_____
15	7	1000	?	_____
15	10	1000	?	_____

ANSWERS: WHAT WILL THE \$1,000 IN 15 YEARS PURCHASE IN TERMS OF TODAY'S DOLLARS? MAKE THESE CONVERSIONS AS SHOWN ABOVE.

CALCULATING YOUR FINANCIAL FUTURE

THERE IS AN ANECDOTE ABOUT TWO DERELICTS WHO WERE SUNNING THEMSELVES ON TWO NEARBY PARK BENCHES. AFTER EXCHANGING THE USUALLY PLEASANTRIES, THE MORE SOULFUL OF THE TWO RAMBLED ON ABOUT HIS PAST LIFE, PAUSING WITH SOMBER DIGNITY FROM TIME TO TIME TO MAKE THE POINT THAT THE REASON HE WAS HERE WAS THAT HE "JUST WOULDN'T LISTEN TO ANYBODY'S GOOD ADVICE." THE OTHER DERELICT TOOK THIS IN VERY CAREFULLY, AND AFTER GIVING IT SOME SERIOUS THOUGHT, HE PROCLAIMED JUST THE OPPOSITE--THAT THE REASON HE WAS HERE WAS THAT HE "LISTENED TO EVERYBODY'S GOOD ADVICE."

THE MORAL OF THIS STORY IS PARTICULARLY RELEVANT TO THE WORLD OF PERSONAL FINANCE, AND IT SAYS THAT ADVICE MAY BE HELPFUL, BUT NO ONE CAN LOOK OUT FOR YOUR INTERESTS LIKE YOU CAN. HOPEFULLY, YOUR RECENT EXPERIENCE WITH A FINANCIAL CALCULATOR HAS GIVEN YOU NEW INSPIRATION AND CONFIDENCE, AS WELL AS EXPERTISE, TO DEAL WITH MONEY IN YOUR FUTURE. THE DYNAMICS OF MONEY AS AFFECTED BY TIME, INTEREST RATE AND PRINCIPAL ADDS A DIMENSION TO FINANCIAL PLANNING AND DECISION MAKING WHICH IS BOTH EXCITING AND SOMETIMES UNSETTLING. HOWEVER, IT IS A DIMENSION WHICH YOU CAN MASTER WITH ENOUGH EXPERTISE TO EVALUATE YOUR OWN FINANCIAL DECISIONS AND GUIDE YOUR OWN FINANCIAL FUTURE.

THE STRUGGLE OF MANY FAMILIES TO MAKE ENDS MEET OFTEN CENTERS ABOUT SAVING PENNIES ON CANNED GOODS AT THE GROCERY STORE. WHILE THIS STRATEGY NEED NOT BE NEGLECTED, IT IS PERHAPS MORE IMPORTANT FOR FAMILIES AND INDIVIDUALS TO EXAMINE THE MANY FINANCIAL INSTRUMENTS INTO WHICH THEY POUR HUNDREDS AND THOUSANDS OF DOLLARS OVER THE YEARS. ARE YOU GETTING YOUR MONEY'S WORTH? MAYBE IT'S TIME TO CALCULATE AND EVALUATE.

ANSWER SHEET

<u>PAGE</u>	<u>ITEM</u>	<u>ANSWERS</u>
6	OPTION 2	\$320.52 IN INTEREST \$ 55.86 AFTER 9 YEARS \$225.02 FOR \$30,000
7	SAMPLE PROBLEM 2 SAMPLE PROBLEM 3	\$401,545.37 FOR DAILY COMPOUNDING 5.02% ANNUAL APPRECIATION
8	PRACTICE	\$117,763.91 FOR END OF MONTH \$118,671.68 FOR BEGINNING OF MONTH
9	PRACTICE	472.38 MONTHS, 39 YEARS & 4.4 MONTHS 41.68 MONTHS, 3 YEARS & 5.6 MONTHS
10	PRACTICE	7.17 YEARS
11	PRACTICE	288.78 YEARS 13.78 YEARS 8.69 YEARS
12	SAMPLE PROBLEM 8	\$161.54 \$175.71 \$189.88 \$204.05
13	SAMPLE PROBLEM 9	\$51,533.94 \$60,903.75 \$70,273.56 \$79,643.37 \$89,643.37 THE MOST EXPENSIVE

13	SAMPLE PROBLEM 10	\$219.69 \$214.30 SECOND DEALER BY \$258.72
14	PRACTICE	\$567.00
15	PRACTICE	\$206.70 PER MONTH FOR \$8,500 \$182.39 PER MONTH FOR \$7,500 \$ 24.31 MONTHLY DIFFERENCE \$1,458.60 TOTAL DIFFERENCE
17	PRACTICE	\$70.90 (257.63 - 186.73)
18	PRACTICE	\$1,800.94 FV AT 4% \$2,759.03 FV AT 7% \$4,177.25 FV AT 10% \$ 555.27 TODAY'S VALUE AT 4% \$ 362.45 TODAY'S VALUE AT 7% \$ 239.39 TODAY'S VALUE AT 10%

TECHNICAL NOTES

1. THE TIME IT TAKES TO DOUBLE THE AMOUNT OF MONEY IN AN ANNUALLY COMPOUNDED INTEREST BEARING ACCOUNT CAN BE ESTIMATED QUITE EASILY USING THE RULE OF 72. ACCORDING TO THIS RULE, THE DOUBLING TIME IS EQUAL TO THE NUMBER 72 DIVIDED BY THE INTEREST RATE NUMBER. FOR EXAMPLE, THE MONEY IN AN ACCOUNT PAYING 8% INTEREST COMPOUNDED ANNUALLY WILL DOUBLE IN 9 YEARS ($72 \div 8 = 9$). THIS ESTIMATE PROVIDES AN EASY WAY TO CHECK ANSWERS WHICH LOOK UNREALISTIC OR IMPROBABLE ON YOUR CALCULATOR.
2. IN FIGURING FUTURE VALUE PROBLEMS INVOLVING PERIODIC PAYMENTS, SUCH AS MONTHLY PAYMENTS, THE WORKBOOK USES

ONLY EXAMPLES IN WHICH BOTH THE PAYMENT AND COMPOUNDING PERIOD ARE THE SAME. FOR INSTANCE, IF THE PAYMENT PERIOD IS MONTHLY, SO TOO IS THE COMPOUNDING PERIOD. THIS WAS DONE FOR LEARNER CONVENIENCE. HOWEVER, SUCH PROBLEMS CAN BE SOLVED WHERE THE PAYMENT AND COMPOUNDING PERIODS ARE DIFFERENT. THE EXAMPLES BELOW DEMONSTRATE THE PROCEDURE FOR BOTH LIKE AND UNLIKE PERIODS.

EXAMPLE A. LIKE PAYMENT AND COMPOUNDING PERIODS.

ACCORDING TO THIS SAVINGS PLAN, \$250 PER MONTH IS TO BE PLACED IN AN ACCOUNT OFFERING 8% INTEREST COMPOUNDED MONTHLY OVER A PERIOD OF 10 YEARS. HERE IS HOW TO FIGURE THE FUTURE VALUE OF THIS ACCOUNT.

<u>N</u>	<u>%I</u>	<u>PMT</u>	<u> </u>	<u>FV</u>
12X10	8/12	250		?

ANSWER: PRESS "DUE" TO SOLVE. \$46,041.42

EXAMPLE B. UNLIKE PAYMENT AND COMPOUNDING PERIODS.

USING THE INFORMATION FROM EXAMPLE A, HERE IS HOW TO FIND THE FUTURE VALUE OF A SIMILAR ACCOUNT WHICH HAS DAILY COMPOUNDING INSTEAD OF MONTHLY COMPOUNDING. (NOTE: ONCE YOU SOLVE FOR A FACTOR, SIMPLY MOVE ON TO THE NEXT SET OF ENTRIES. DO NOT CLEAR.)

<u>N</u>	<u>%I</u>	<u> </u>	<u>PV</u>	<u>FV</u>
365	8/365		1	?

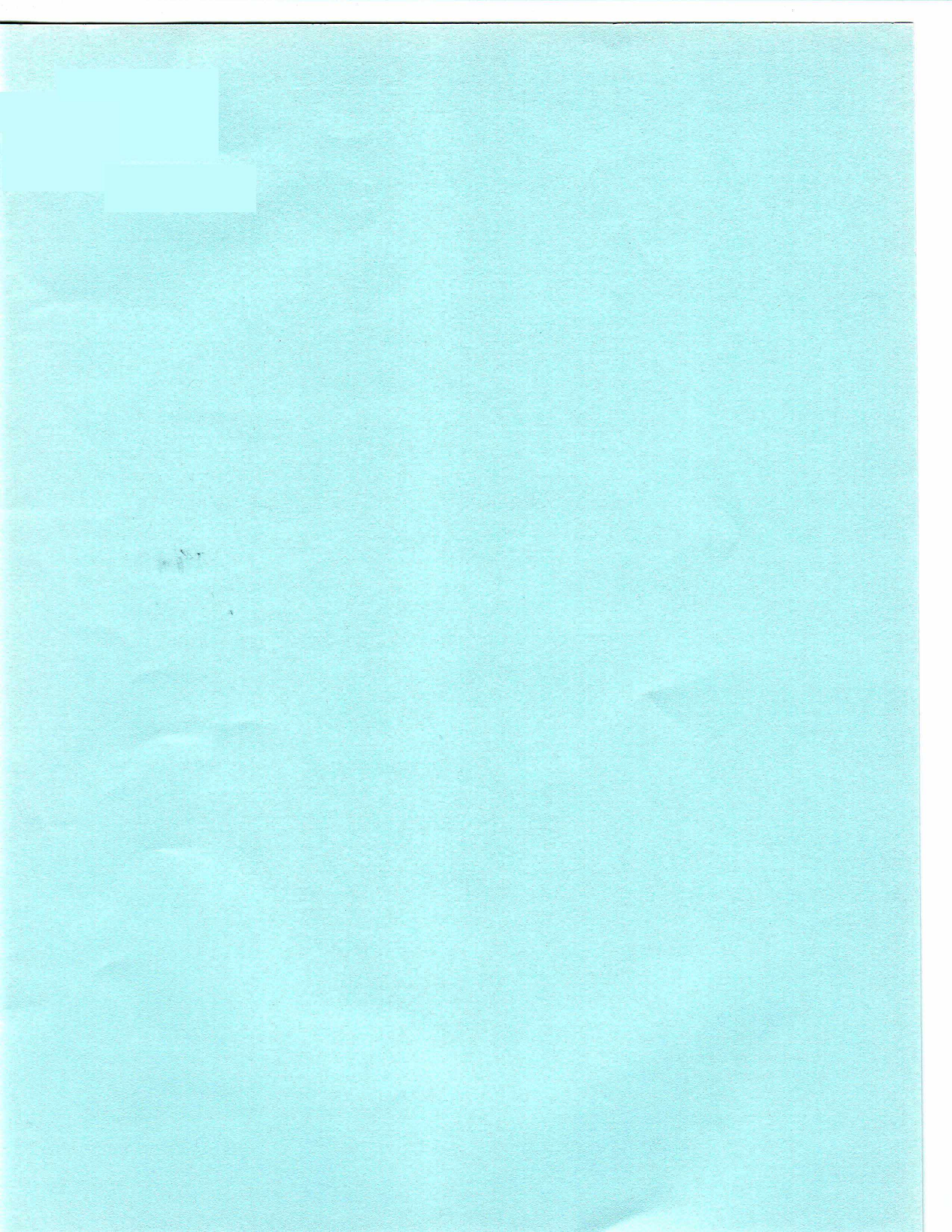
<u>N</u>	<u>%I</u>	<u> </u>	<u> </u>	<u> </u>
12	?			

<u>N</u>	<u> </u>	<u>PMT</u>	<u> </u>	<u>FV</u>
12X10		250		?

ANSWER: PRESS "DUE" FOR FINAL FV. \$46,108.84
 (NOTE: 365 IS THE DAILY COMPOUNDING FACTOR AND THE 1 IS A CONSTANT.)

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