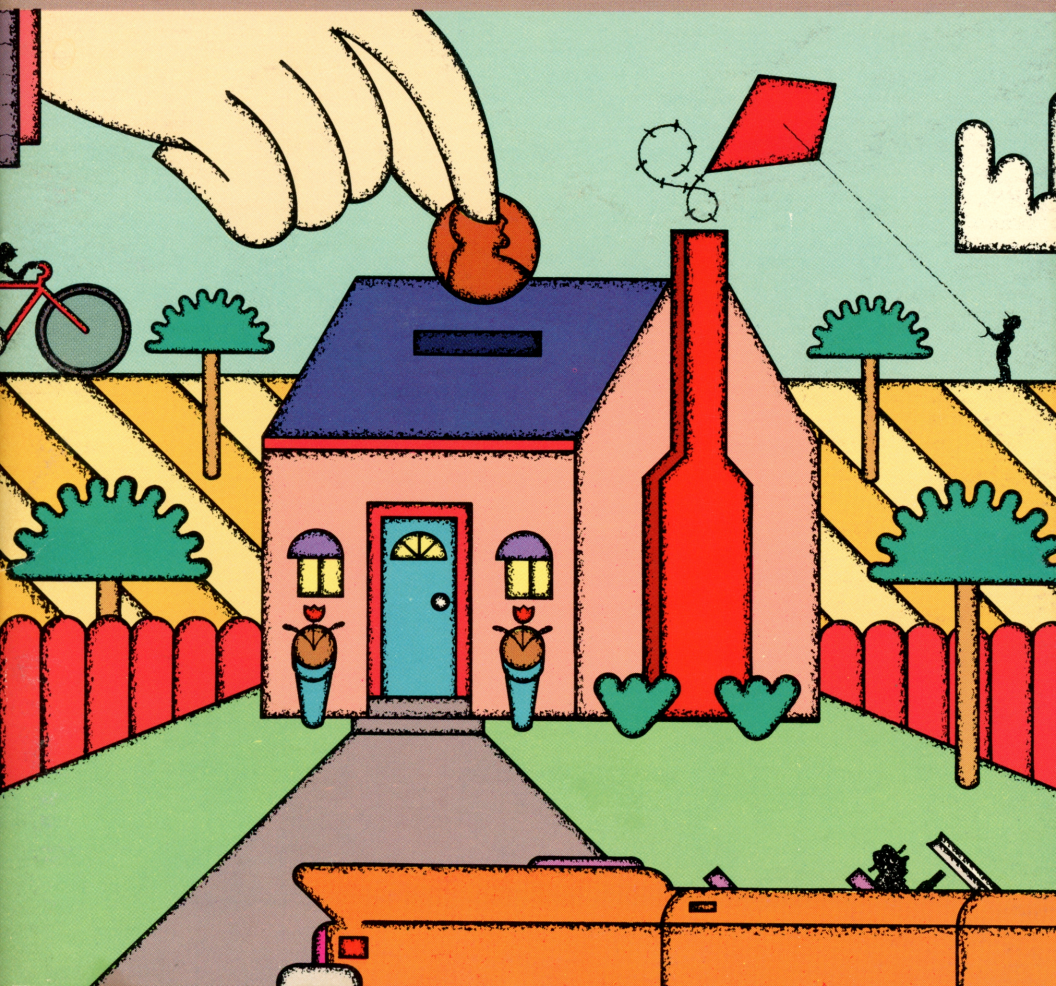# TEXAS INSTRUMENTS
HOME COMPUTER

HOME FINANCIAL DECISIONS
INFORMATION MANAGEMENT

SOLID STATE CARTRIDGE

A step-by-step guide to evaluating everyday financial questions. Helps you make informed decisions regarding general loans, home and car buying, and personal savings.

Quick Reference Guide

Note that the key sequences required to access special functions depend on the type of computer console you have. Important keystroke sequences are summarized here for your "quick reference."

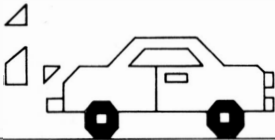| _TI-99/4_	_TI-99/4A_	
ENTER	**ENTER**	Information is given to the computer by typing the number (or letter) required and then pressing the **ENTER** key.
SHIFT C **(CLEAR)**	**FCTN 4** **(CLEAR)**	Useful for correction of typing errors. Pressing **CLEAR** (before pressing **ENTER**) will erase the current data and allow you to type new information.
SHIFT ← **SHIFT →**	**FCTN ←** **FCTN →**	These keys move the cursor backward ← or forward → to allow you to change a number entry.
SHIFT ↑	**FCTN ↑**	While reviewing results, **SHIFT ↑** allows you to review a previous results screen.
SHIFT R **(REDO)**	**FCTN 8** **(REDO)**	Allows you to start over in the same section (to reenter values, etc.).
SHIFT Z **(BACK)**	**FCTN 9** **(BACK)**	Returns the computer to the selection list for the category you are working in. Pressing **BACK** twice in a row is equivalent to pressing **BEGIN**.
SHIFT W **(BEGIN)**	**FCTN 5** **(BEGIN)**	Returns the computer to the main selection list so you can choose another category. _Note_: All data you have entered will be erased.
SHIFT Q **(QUIT)**	**FCTN =** **(QUIT)**	Returns the computer to the master title screen. _Note_: All data you have entered will be erased.

Home Financial Decisions

This *Solid State Software*™ Command Module is designed to be used with the Texas Instruments Home Computer. Its preprogrammed solid-state memory expands the power, versatility, and capability of your Home Computer.

TEXAS INSTRUMENTS
HOME COMPUTER

TABLE OF CONTENTS

INTRODUCTION

Ready to buy a new house, but concerned about the amount of the payments? How much do you need to save per month for the next ten years to have $8000 set aside for four years of college for your child? You're considering leasing a car — but what are the financial differences between leasing and buying? The Home Financial Decisions Command Module can help you answer these questions — and many more.

This module lets you explore a wide variety of financial decisions in each of these categories:

- Loans
- Residence
- Car
- Savings

The Loans section has been designed to help you in evaluating payment and interest alternatives. The Residence section helps you determine everything from the size of a monthly house payment, to which house is a better financial buy, to the considerations involved in renting or buying your home. The Car section can help you evaluate a new car loan, the cost of your present car versus buying a new one, and the whole question of car leasing. The last section, Savings, lets you evaluate and schedule your savings plans. These are just a few of the options the module provides.

Because there are numerous alternatives available, we've arranged this book to make these options easy to explore. In each case, the Command Module prompts you through the inputs needed to evaluate the alternatives. All you have to do is type in the information as requested and press the **ENTER** key. The computer then calculates the results for you. Since the module is not designed for use with a cassette, diskette, or printer, we recommend that you write down each result so that you can compare all of your alternatives.

USING THIS MANUAL

Before you begin using the module, there are two important sections of this book that should be reviewed. The first is a brief Keyboard Tour of the special keys and functions that work with this module. The second important section is Understanding Present Value. Present value comparisons are used in the Residence and Car sections to allow proper comparisons of alternative cash flow situations.

The manual then continues into each of the four major categories: loans, residence, car, and savings. Each of the categories is divided into these sections:
- Options available
- Definitions of Terms
- Inputs required (by option)
- Solution outputs (by option)

Each option is presented in a straightforward, step-by-step sequence. You'll see each of the inputs the computer asks you to enter, and each of the solution outputs given by the computer. For your convenience, a *sample* set of values is given in the margin to the left of each step, in case you want to practice before trying out your own data. The inputs are indicated in this manual by ►; the outputs are indicated by ◄.

The terminology used in this module is designed to be self-explanatory. However, any special terms or unique usages are explained in the Definition of Terms section included in each category.

When you're ready to use a particular program in the module, it's a good idea to check through the list of inputs needed before beginning. Most of this information can be readily obtained from records, loan companies, etc., but some of the values (such as home appreciation rate) must be estimated.

The module is designed to let you repeat a section so that you can change various inputs to see the effect on the solution. This "What if?" capability gives you flexibility for determining the best alternative in many financial situations. You can evaluate the effect of changing interest rates, down payment amounts, tax rates, and many other data inputs. Reasonable real-life values should be used as inputs because the computer analysis will naturally only be as valid as your input information.

SPECIAL KEYS AND FUNCTIONS

ENTER Information is given to the computer by typing the number (or letter) required and then pressing the **ENTER** key. *Note:* All percentage amounts (interest, tax, etc.) should be entered as annual percentages (12, not .12).

CURSOR The screen shows a flashing symbol (cursor) or character to tell you when and where to type information for the computer.

Once you have entered values in a problem, the computer remembers these numbers. As each choice appears, the first digit of the stored value will flash. If you want to keep that value, press the **ENTER** key. If, however, you want to change to a new number, type in the new value, and press **ENTER**.

■ The "end-of-field" symbol indicates that you have entered all of the characters allowed.

SHIFT C If you make a typing error and have not pressed **ENTER**, press **SHIFT C** to erase the current data and then type the new information.

SHIFT ←
SHIFT → These keys move the cursor backward ← or forward → to allow you to change a number entry.

SHIFT ⬆ Several of the options in this module have more than one results screen of information. To review a previous results screen, press **SHIFT** ⬆ .

SHIFT R This allows you to start over in the same section (to reenter values, etc.).

SHIFT Z This returns the computer to the selection list for the category you are working in. Pressing **SHIFT Z** twice in a row is equivalent to pressing **SHIFT W**.

SHIFT W This returns the computer to the main selection list so you can choose another category. *Note:* All data you have entered will be erased.

SHIFT Q This returns the computer to the master title screen. *Note:* All data you have entered will be erased.

UNDERSTANDING PRESENT VALUE

Present value is a term used to describe the amount of money you would need today to equal a larger future amount based on the present value growing at some investment rate. For example, you could deposit $100 in a savings account paying 6% annually and have $106 at the end of a year. So using this investment rate, here a savings account, we can say $106 received a year from now has an equivalent value today — present value — of $100. Using this concept you can determine the present value of a future series of payments to allow comparison of different payment amounts spread over different time periods.

To illustrate, let's assume you purchase a large appliance for your home by making twelve monthly payments of $91.12. In order to determine the present value, you need to ask the question "What earnings am I foregoing by making the payments?" For many people, the earnings lost is what could be earned in a savings account. So let's assume your savings account pays 5¾% annual interest compounded monthly. The present value is found by discounting the twelve future payments back to today, and it is equal to $1,060.13. This amount is the appliance's cost to you in terms of

present value. Another way to explain it is: If you deposited $1060.13 today in a savings account paying 5¾% annual interest compounded monthly, you could withdraw $91.12 at the end of each month for the next twelve months. The present value therefore takes into account the money you forego earning with an alternative investment.

Whenever you're evaluating the cost of a financial situation, you must also consider your *lost alternative.* That is, if your money is tied up in one situation, you lose any earnings you could make on that money if you had invested it in some other way. Since a savings account is a common alternative, the module program asks you to input your savings account annual interest rate. The program uses that interest rate to find the present value of all costs and cash returns in the Residence and Car sections when comparisons are made.

PRESENT VALUE OF TAX SAVINGS

Income taxes also play an important part in making investment decisions. When you buy a car or house and make monthly payments, you are paying interest. This interest, in many cases, is deductible on your tax return if you itemize deductions. In the case of a house purchase, property taxes are also deductible.

In the residence and car sections, the programs compute the tax savings for each alternative (based on the income tax rate you enter), and calculate the present value using the alternative investment rate you specify. Therefore, the present value of the tax savings offsets part of the cost of buying a house or car.

PRESENT VALUE OF APPRECIATION AND EQUITY

The residence and car programs assume that you sell the house or car at the end of the analysis period selected. For cars, the program reduces the costs involved by the present value of the car's expected resale value. For houses, you specify an annual percent

growth rate for appreciation in the value. The program computes the present value of the difference between the projected market value and the amount owed on the mortgage at the end of the analysis period. This represents the current value of the future house equity and offsets the present value of the various home owning costs.

USING THE SOLID STATE SOFTWARE™ COMMAND MODULE

TEXAS INSTRUMENTS
HOME COMPUTER
READY-PRESS ANY KEY TO BEGIN

© 1979 TEXAS INSTRUMENTS
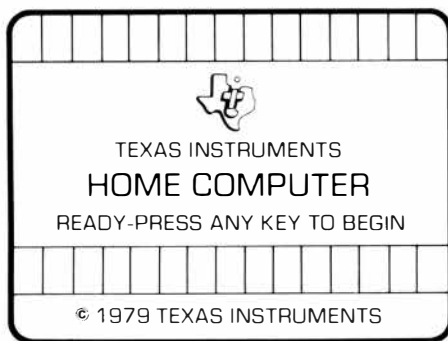
Note: Be sure the module is free of static electricity before inserting it into the computer. See page 40.

1. Turn the computer ON and wait for the master title screen to appear. Then slide the module into the slot on the console.
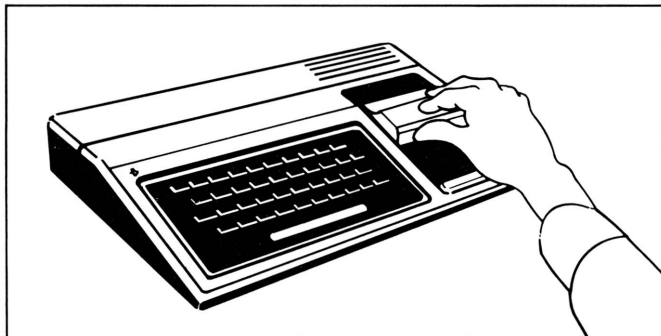
An automatic reset feature is built into the computer. Any time a module is plugged into the console, the computer returns to the master title screen. (*Note:* All data and program material you have entered will be erased.) In rare instances if the module is accidentally removed from the slot while the module contents are being used, the computer may behave erratically. To restore the computer to normal operation, turn the computer console off, wait a few seconds, reinsert the module, and turn it on again.

2. Press any key to make the master selection list appear. Then press the number which appears next to Home Finance.

Note: To remove the module, *first* return the computer to the master title screen by pressing **SHIFT Q.** *Then* remove the module from the slot. If you have any problem inserting the module, or if it is accidentally removed from the slot while in use, please see "In Case of Difficulty" on page 41.

After you choose Home Finance, a title sequence appears, followed automatically by instructions for an "Easy 3 Step Use" of the module. Then you can choose one of four major options available, as indicated below.

```
PRESS
    1 FOR LOANS
    2       RESIDENCE
    3       CAR
    4       SAVINGS
```

LOANS

In this section, the module will perform five types of conventional loan analyses.

```
              CONVENTIONAL LOANS
      PRESS
          1  FOR AMOUNT YOU CAN
                 BORROW
          2      SIZE OF PAYMENTS
          3      NUMBER OF PAYMENTS
          4      SIZE OF DOWN
                 PAYMENT
          5      EARLY PAYOFF
```

After selecting the desired option, you are asked to supply input values. When you have entered all the necessary inputs, the computer supplies the appropriate results. *Note:* All results are computed using compound interest techniques based on payments made at the *end* of each compounding period.

Definition of Terms

Amount of All But the Last Payment, Amount of Final Payment — Usually loan payments are of equal amounts except for the last payment which may vary slightly. If all of the payments are equal, both results are shown, but with equal amounts.

Amount you can Borrow

This program helps you determine the amount you can borrow, based on:

$100
24
18

► Size of Monthly Payments You Want
► Number of Monthly Payments
► Annual Percent Interest Rate

After you have entered these values, the computer will display:

$2003.04
$ 396.96

◄ The Amount You Can Borrow
◄ Total Interest Paid

These values are computed using compound interest techniques.

Size of Payments

This program determines the amount of your monthly payments, based on inputs of:

$2000
24
18

► Amount Borrowed
► Number of Monthly Payments
► Annual Percent Interest Rate

The output is shown as:

24
$ 99.85
$ 99.80
$396.35

◄ Number of Payments
◄ Amount of All But the Last Payment
◄ Amount of Final Payment
◄ Total Interest Paid

Number of Monthly Payments

This program determines how many monthly payments are needed to pay off a loan, based on:

$5000
$150
12

► Amount Borrowed
► Size of Monthly Payments You Want
► Annual Percent Interest Rate

The results are:

41	◄ Number of Monthly Payments
$ 150.00	◄ Amount of All But the Last Payment
$ 112.48	◄ Amount of Final Payment
$1112.48	◄ Total Interest Paid

Size of Down Payment

The size of down payment needed for a particular purchase is determined using the following inputs:

$7000	► Purchase Price
$175	► Size of Monthly Payments You Want
48	► Number of Monthly Payments
11.5	► Annual Percent Interest Rate

The output shows:

$ 292.19	◄ The Size of Down Payment Necessary
$1692.20	◄ Total Interest Paid

Note: If the monthly payment entered would overpay the loan in the number of payments specified, the program uses the number of payments to compute the lower monthly payment needed assuming no down payment.

Early Payoff

This program computes (using compound interest techniques) the amount necessary to pay off a loan early, based on this information:

$10000	► Amount Borrowed
10	► Annual Percent Interest Rate
43	► Number of Payments You Have Made
$212.75	► Size of Monthly Payments

The results are:

$3340.43	◄ The Amount Needed to Pay Off the Loan
$2488.68	◄ Total Interest Paid

Note: The payoff amount is computed using compound interest techniques and does not include any prepayment penalties.

RESIDENCE

Six types of residence analyses are available.

```
                    RESIDENCE
PRESS
    1    FOR  BUY A HOUSE
    2         BUY HOUSE A OR B
    3         BUY OR RENT
    4         REMAIN IN HOUSE
              OR BUY A NEW ONE
    5         REMAIN IN HOUSE
              OR RENT
    6         REFINANCE MORTGAGE
```

The results of the evaluations compare the total costs of each alternative. Because the analysis concentrates on costs, costs are shown as positive (+) values, and reduction of costs are shown as negative (–) values. These values are shown in terms of present value (see "Understanding Present Value").

Definition of Terms

Appreciation — The dollar amount your house increases in value over a set period of time, computed using the Expected Annual Percent Increase in Market Value.

Closing Costs — All costs incurred by the buyer of a house in order to obtain the mortgage. Any payments for points, title insurance, surveying fee, etc. should be included here.

Equity — The sum of two values: the principal paid on a mortgage (including down payment) and the increase in market value resulting from appreciation. Equity is shown as the present value of the difference between the projected market value and the mortgage balance at the end of the analysis period.

Expected Annual Percent Increase in Market Value — The expected annual appreciation rate. The program is designed to increase the market value by the percentage entered for each year in the analysis period used. This value should not be overstated because it has a significant effect on the final results. (If you expect no increase, just enter 0.)

Fees on New Mortgage — The cost of refinancing a mortgage, which includes such items as origination fees and recording fees.

Income Tax Bracket in Percent — The tax rate used in computing your federal income taxes. If you do *not* itemize deductions, enter 0 for this value.

Insurance Payment (monthly) — The monthly insurance payment based on spreading the annual insurance cost (previously entered) in an escrow account.

Market Value — The value of the house at the end of the analysis period.

New Mortgage Amount — The amount refinanced by a new mortgage. It is used only in the refinancing option, and can be more or less than the existing mortgage. However, some states have restrictions on refinancing mortgages. Your lender can provide this information.

Number of Months Between Closing and End of Year — For calculations in the module, the first results are shown for this partial year, and the following years are on a calendar year basis. This simplifies tax computations.

Number of Payments — To find the total number of payments, multiply the number of years in the loan by 12 months per year.

Number of Years in this Analysis — The number you enter here tells the computer how many years you want to see in the analysis. Remember, however, that your tax rates, property taxes, insurance rates, and utilities will change over time. Therefore, the analysis period should normally be short (3 to 5 years). Partial years are entered as a decimal. For example, 2½ is entered as 2.5.

Prepayment Penalty — Some mortgages have clauses for an early payoff penalty. You can obtain this information from your contract or your lender.

Principal Paid — The portion of your mortgage payments totalled over the analysis period which reduced the amount you borrowed. (Does not include interest, taxes, or insurance.)

Property Taxes (monthly) — The program computes the monthly property tax payment, based on spreading the annual property tax amount paid into an escrow account.

Savings Account Interest Rate — The alternative interest rate (savings account or investment) you can earn on the money if it's not used for a residence (see "Understanding Present Value" for more details).

Tax Savings — This amount represents the estimated dollars you save in income taxes (if you itemize deductions). It is calculated by multiplying the sum of property taxes and interest by the tax rate you enter.

Buy a House This program helps you estimate the costs of buying a house and thus quickly evaluate your ability to cover the yearly cash outflows. The program computes the total monthly payment and yearly projections of the various cash costs. It also computes the interest paid each year (for your tax returns), the equity build-up resulting from principal payments and increases in market value, and the end-of-year loan balance. You can also estimate the yearly tax savings resulting from buying the house.

While most of the input values for these programs are available from your Realtor or lender, you can vary the estimates to determine their effect if you have doubts about a value. Once the program has been run, you only need to reenter the values you want to change in evaluating alternate situations.

Provide the following information when asked by the program:

$50000	► Purchase Price
$10000	► Down Payment
240	► Number of Payments
11.8	► Mortgage Interest Rate
7	► Expected Annual Percent Increase in Market Value
$675	► Annual Property Tax Payments
$612	► Annual Insurance Payments
0	► Number of Months Between Closing and End of Year
30	► Your Federal Income Tax Bracket in Percent
1	► Number of Years in This Analysis

After the number of years in the analysis has been entered, the display shows the first set of answers:

$434.87	◄ Monthly Mortgage Payment
$ 56.25	◄ Monthly Property Taxes
$ 51.00	◄ Monthly Insurance Payment
$542.12	◄ Total Monthly Payment

Press **ENTER** for the next solution screen. This display, if titled Year 0, is for the number of months between closing and the end of the year. Subsequent displays (and the first, if Year 1) show yearly values. These screens consist of:

1	◄ Year Number
$ 3500.00	◄ Appreciation
$53500.00	◄ Market Value
$ 526.30	◄ Principal Paid
$39473.70	◄ Loan Balance
$14026.30	◄ Equity
$ 4692.14	◄ Interest Paid
$ 1610.14	◄ Tax Savings

You can examine each year's cash flows in the analysis by continuing to press **ENTER**.

**Buy House
A or B**

This program computes the net costs of two houses (in present value terms) and determines which would be the better financial buy. This comparison gives you a look at the economic factors only, and does not include intangible values such as location, design, suitability, etc.

Although the inputs for this program are almost the same as for "Buy a House," there is one important difference. In order to compute the present value, you need to enter the alternative interest rate you could earn on the cash flows if you did not buy either house. For many people this is the rate they can earn in a savings account; therefore the program requests your savings account interest rate. If you have other investment alternatives, use the rate that's most appropriate for you.

The output gives you the present value of each cash flow item, tax savings, equity, and the net present value. The program assumes that the house is sold for the projected market price at the end of the analysis period. If you want to ignore this assumption, ignore the value shown for equity.

This option does not show the monthly payment amount. To determine if you can cover the annual costs use the Buy a House program for each alternative before using this program.

The program asks for the following items for House A:

$50000	► Purchase Price
$10000	► Down Payment
$1000	► Closing Costs
240	► Number of Monthly Payments
11.8	► Annual Percent Mortgage Interest Rate
7	► Annual Percent Increase in Market Value
$675	► Annual Property Tax Payments
$612	► Annual Insurance Payments
$150	► Estimated Monthly Utility Costs

Then, the same information is entered for House B.

$60000	► Purchase Price
$6000	► Down Payment
$1200	► Closing Costs
360	► Number of Monthly Payments
12	► Annual Percent Mortgage Interest Rate
8	► Annual Percent Increase in Market Value
$850	► Annual Property Tax Payments
$725	► Annual Insurance Payments
$200	► Estimated Monthly Utility Costs

After entering these values you are asked to enter:

30	► Your Federal Income Tax Bracket in Percent
6.25	► Annual Percent Interest Rate on Your Savings Account
12	► Number of Times Per Year Savings Account Interest is Compounded
1	► Number of Years in This Analysis

When the number of years has been entered, the following values are displayed for House A. These are all computed in terms of present value. Costs are shown as positive (+) values and decreases of cost are shown as negative (–) values.

+ $10000.00	◄ Down Payment
+ $ 1000.00	◄ Closing Costs
+ $ 5045.99	◄ Mortgage Payments
+ $ 591.78	◄ Insurance Payments
+ $ 652.69	◄ Property Taxes
+ $ 1740.52	◄ Utilities
– $ 1512.83	◄ Tax Savings
– $13178.63	◄ Equity
+ $ 4339.52	

Then the same information is shown for House B.

+ $ 6000.00	◄ Down Payment
+ $ 1200.00	◄ Closing Costs
+ $ 6445.13	◄ Mortgage Payments
+ $ 701.08	◄ Insurance Payments
+ $ 821.87	◄ Property Taxes
+ $ 2320.69	◄ Utilities
– $ 2063.12	◄ Tax Savings
– $10331.41	◄ Equity
+ $ 5094.24	

The next display compares the net present values of the costs of the two houses over the analysis period chosen.

$754.72   ◄ Cost of Buying House A is Less Than House B.

Remember, this value is valid only for the analysis period chosen (1 year in this example).

Buy or Rent   This program computes the cost of buying a house and compares it to the cost of renting a house or apartment. These costs are shown in present value terms. When buying, you receive benefits from tax savings and appreciation. However, there are normally no tax benefits resulting from renting.

The program first asks for the following inputs for the residence to be purchased:

$50000	► Purchase Price
$10000	► Down Payment
$1000	► Closing Costs
360	► Number of Monthly Payments
12	► Annual Percent Mortgage Interest Rate
7	► Annual Percent Increase in Market Value
$675	► Annual Property Tax Payments
$612	► Annual Insurance Payments
$150	► Estimated Monthly Utility Costs

The following information for the rental residence is then requested:

$350	► Monthly Rent Payment
N	► Are Utility Costs Included in the Lease?
	If yes, the next question is Insurance. If no:
$100	► Estimated Monthly Utility Costs
N	► Is Insurance Included in the Lease?
	If yes, the next question is Tax Bracket. If no:
$180	► Estimated Yearly Insurance Cost
30	► Federal Income Tax Bracket in Percent
6.25	► Annual Percent Interest Rate on Your Savings Account
12	► Number of Times Per Year Savings Account Interest is Compounded
2	► Number of Years in This Analysis

The next display shows the costs of buying (in present value terms) for the analysis period chosen.

+ $10000.00	◄ Down Payment
+ $ 1000.00	◄ Closing Costs
+ $ 9259.94	◄ Mortgage Payments
+ $ 1147.79	◄ Insurance Payments
+ $ 1265.94	◄ Property Taxes
+ $ 3375.84	◄ Utilities
− $ 2984.06	◄ Tax Savings
− $15496.24	◄ Equity
+ $ 7569.21	

Then the costs of renting are shown.

+ $ 7876.97	◄ Rent Payments
+ $ 2250.56	◄ Utilities
+ $ 337.58	◄ Insurance Payments
+ $10465.11	

The final display compares the net present values of the costs of buying or renting over the analysis period chosen.

$2895.90   ◄ Cost of Buying is Less Than Renting

Remain in House or Buy a New One

This program compares the costs of remaining in a house you currently own to the costs of buying a new one. The costs are expressed in present value terms.

Enter for your current house:

Y	► Is there a Mortgage?
	If no, next entry is Market Value. If yes:
$160	► Monthly Mortgage Payment (principal and interest only)
$20100	► Present Mortgage Balance
8	► Annual Percent Interest Rate
$48000	► Present Market Value
6	► Expected Annual Percent Increase in Market Value
$940	► Annual Property Tax Payments
$520	► Annual Insurance Payments
$175	► Estimated Monthly Utility Costs

Now enter the following data for the new house:

$60000	► Purchase Price
$6000	► Down Payment
$1200	► Closing Costs
360	► Number of Monthly Payments
12	► Annual Percent Interest on Mortgage
8	► Expected Annual Percent Increase in Market Value
$1180	► Annual Property Tax Payments
$800	► Annual Insurance Payments
$175	► Estimated Monthly Utility Cost

Then you are asked for:

30	► Income Tax Bracket in Percent
10	► Annual Percent Interest Rate on Your Savings Account (alternate investment)
12	► Number of Times Per Year Savings Account Interest is Compounded
3	► Number of Years in This Analysis

The first solution display shows the costs of remaining in your present house (in present value terms) for the total analysis period.

+ $ 4958.60	◄ Mortgage Payments
+ $ 1342.85	◄ Insurance Payments
+ $ 2427.54	◄ Property Taxes
+ $ 5423.47	◄ Utilities
− $ 1857.55	◄ Tax Savings
− $28277.11	◄ Equity
− $15982.20	

The next display shows the costs of buying the new house, (in present value terms) over the analysis period.

+ $ 6000.00	◄ Down Payment
+ $ 1200.00	◄ Closing Costs
+ $17214.08	◄ Mortgage Payments
+ $ 2066.19	◄ Insurance Payments
+ $ 3047.37	◄ Property Taxes
+ $ 5423.47	◄ Utilities
− $ 5642.00	◄ Tax Savings
− $16502.42	◄ Equity
+ $12806.69	

The third display shows the cost of buying the new
house reduced by the cash received from selling the old
house. The program assumes that if you buy the new
house, the old house is sold.

+ $12806.69	◄ Previous Total
– $27900.00	◄ Cash from Sale of Present House
– $15093.31	

The final display shows the most advantageous option
and the difference in present value dollars.

$888.89 ◄ Cost of Remaining in Present House is Less

**Remain in
House or Rent** The program compares the costs (in present value
terms) of remaining in your current house to selling it
and renting. First input the following information for
your present house:

Y	► Is There a Mortgage?
	If no, next entry is Market Value. If yes:
$160	► Monthly Mortgage Payment (principal and interest only)
$20100	► Present Mortgage Balance
8	► Annual Percent Interest Rate
$48000	► Present Market Value
6	► Expected Annual Percent Increase in Market Value
$940	► Annual Property Tax Payments
$520	► Annual Insurance Payments
$175	► Estimated Monthly Utility Costs

Next enter the following information for the proposed rental residence:

$350	► Monthly Rent Payment
N	► Are Utility Costs Included in the Lease?
	If no, next question is Insurance. If yes:
$120	► Estimated Monthly Utility Costs
N	► Is Insurance Included in the Lease?
	If yes, next entry is Income Tax. If no:
$180	► Estimated Yearly Insurance Cost
30	► Your Federal Income Tax Bracket in Percent
6.25	► Annual Percent Interest Rate on Your Savings Account
12	► Number of Times Per Year Your Savings Account Interest is Compounded
3	► Number of Years in This Analysis

The next display shows the present value of the costs associated with remaining in your present house for the analysis period.

+ $ 5239.83	◄ Mortgage Payments (principal and interest only)
+ $ 1419.01	◄ Insurance Payments
+ $ 2565.22	◄ Property Taxes
+ $ 5731.06	◄ Utilities
− $ 1996.64	◄ Tax Savings
− $31620.20	◄ Equity
− $18661.72	

Costs of renting (in present value) are shown in the next display. Notice that the cash from sale of your house is deducted from the costs of renting.

+ $11462.13	◄ Rent Payments
+ $ 3929.87	◄ Utilities
+ $ 491.23	◄ Insurance Payments
+ $15883.23	
− $27900.00	◄ Cash From Sale of Present House
− $12016.77	

The final display compares the present value costs of remaining in your house with the costs of renting for the analysis period.

$6644.95	◄ Cost of Remaining is Less Than Renting

Refinance Mortgage

This program compares the cost of keeping your current mortgage with the cost of refinancing the mortgage. Present value techniques are again used to permit direct comparison. The program assumes the refinancing is for your current house, so you don't need to consider property taxes, utilities, insurance, or market appreciation.

First, enter this information for your current mortgage and the new mortgage:

$20100	► Present Mortgage Balance
$160	► Monthly Mortgage Payment (principal and interest only)
7	► Annual Percent Interest Rate
Y	► Is There a Prepayment Penalty?
	If no, next entry is Amount of New Mortgage.
	If yes:
$200	► Amount of Prepayment Penalty
$30000	► Amount Borrowed for New Mortgage
11	► Annual Percent Interest Rate
360	► Number of Monthly Payments
100	► Total Fees on New Mortgage
6	► Annual Percent Interest Rate on Your Savings Account
12	► Number of Times Per Year Savings Account Interest is Compounded
30	► Your Federal Income Tax Bracket in Percent
6	► Number of Years in This Analysis

The first solution display shows the cost of the current mortgage (present value).

+ $9654.32	◄ Mortgage Payments
− $1896.55	◄ Tax Savings
− $2661.66	◄ Increase in Equity
+ $5096.11	

The next display shows the cost of the new mortgage (present value).

+ $17239.00	◄ Mortgage Payments
+ $ 200.00	◄ Prepayment Penalty
+ $ 100.00	◄ Total Fees
− $ 4770.81	◄ Tax Savings
− $ 757.23	◄ Increase in Equity
+ $12010.96	

The final display compares the costs of the current and new mortgages.

$6914.85   ◄ The Cost of the Present Mortgage is Less

CAR

With this section of the module, you can examine six situations involved in buying a car, leasing a car, or paying off a car loan.

```
                    CAR
PRESS
        1    FOR BUY A CAR
        2        BUY CAR A OR B
        3        LEASE OR BUY A CAR
        4        KEEP PRESENT CAR
                 OR BUY A NEW ONE
        5        KEEP PRESENT CAR
                 OR LEASE A CAR
        6        EARLY PAYOFF
```

As in the residence section, present value techniques are used for the evaluations. These evaluations compare the costs involved with each alternative. Since the analysis is based on cost comparisons, the results are displayed with a positive (+) value for costs and a negative (−) value for reductions in cost. See "Understanding Present Value" for an explanation of these techniques.

Definition of Terms

Amount of All But the Last Payment, Amount of Final Payment — Usually loan payments are of equal amounts except for the last payment which may vary slightly. If all of the payments are equal, both results are shown, but with equal amounts.

Annual Percent Interest Rate — The annual interest rate for the car loan. This is *not* the add-on interest rate.

Cash From Sale of Present Car — The difference between the resale value and the loan balance.

Estimated Resale Value After the Analysis Period — The dollar value of the car at the end of the analysis period, expressed in present value terms.

Income Tax Bracket in Percent — The tax rate used in computing your federal income taxes. If you do not itemize deductions, enter 0 for this value.

Length of Lease in Months — Number of months of lease. This value automatically determines the analysis period for the lease situations.

Loan Payments — The present value of the loan payments *and* the payoff amount if the analysis term is less than the loan life.

Number of Years in the Analysis — The number you enter tells the computer how many years to compile in the analysis.

Savings Account Interest Rate — The alternative interest rate (savings account or investment) you can earn on the money if not used for a car (see "Understanding Present Value" for more details).

Tax Savings — The estimated amount saved in income taxes if you itemize deductions. It is calculated by multiplying the total interest paid during the analysis period by the tax rate you enter.

Buy a Car

With this program, you can compute the amount of the monthly payments needed to purchase a particular car based on the number of payments and the interest rate. The program assumes you borrow the difference between the purchase price and the down payment, which includes any trade-in.

Once you have run the program, only the information you want to change needs to be reentered to evaluate alternate situations.

$4788	► Purchase Price
$500	► Down Payment Including Any Trade-In
36	► Number of Monthly Payments
11	► Annual Percent Interest Rate

After the inputs have been entered, the next screen shows the solution:

36	◄ Number of Monthly Payments
$140.38	◄ Amount of All But the Last Payment
$140.53	◄ Final Payment
$765.83	◄ Total Interest Paid

Buy Car A or B

This program computes the net costs of two cars (in present value terms) and determines which would be the better buy. This comparison assumes you will make the decision based only on the cash costs and cannot include intangible values such as make and model, appearance, etc.

Although the inputs for this program are almost the same as for "Buy a Car," there is one important difference. In order to compute the present value, you need to enter the alternative interest rate that could be earned on the cash flows if you did not buy either car. For many people this is the rate they can earn in a savings account, so this is what the program requests. If you have other investment alternatives, use the rate that's most appropriate.

The output gives the present value of each cash flow item, tax savings, resale value, and the net present value. The program assumes that the car is sold for the projected price at the end of the analysis period. The program also assumes you pay off the loan balance if the analysis period is less than the loan period.

The program does not show the monthly payment amount. To determine if you can cover the monthly costs, use the Buy a Car program for each alternative before you use this program.

The program asks for the following inputs for Car A.

$4788	► Purchase Price
$500	► Down Payment Including Any Trade-In
36	► Number of Monthly Payments
11	► Annual Percent Interest Rate
$170	► Estimated Yearly Maintenance Cost
$400	► Estimated Yearly Insurance Cost

Then, the same information is entered for Car B.

$5895	► Purchase Price
$600	► Down Payment Including Any Trade-In
48	► Number of Monthly Payments
11	► Annual Percent Interest Rate
$170	► Estimated Yearly Maintenance Cost
$480	► Estimated Yearly Insurance Cost

After entering the values for Car B, you need to enter:

4	► Number of Years in This Analysis
	► Estimated Resale Value After Analysis Period
$1700	Car A
$1900	Car B
6	► Annual Percent Interest Rate on Your Savings Account
365	► Number of Times Per Year Savings Account Interest is Compounded
28	► Your Federal Income Tax Bracket in Percent

The first results displayed show the costs of buying Car A (expressed in present value):

+ $ 500.00	◄ Down Payment
+ $4613.57	◄ Loan Payments
+ $1418.80	◄ Insurance
+ $ 603.19	◄ Maintenance
− $ 195.07	◄ Tax Savings
− $1337.29	◄ Resale Value
+ $5603.20	

Next the cost of buying Car B is displayed:

+ $ 600.00	◄ Down Payment
+ $5825.56	◄ Loan Payments
+ $1702.73	◄ Insurance
+ $ 603.19	◄ Maintenance
− $ 318.15	◄ Tax Savings
− $1494.62	◄ Resale Value
+ $6918.71	

The final result is a comparison of the present value of the costs of the two cars over the analysis period chosen.

$1315.51 ◄ Cost of Buying Car A is Less

Remember, this value is valid only for the analysis period chosen (4 years in this example).

Lease or Buy a Car

This program compares the cost of buying a car to the cost of leasing a car. The costs are shown in present value terms. When buying, you receive benefits from tax savings. However, there are normally no tax benefits resulting from leasing for personal use.

The program first asks for the following information for the car to be purchased:

$5895	► Purchase Price
$600	► Down Payment Including Any Trade-In
36	► Number of Monthly Payments
10	► Annual Percent Interest Rate
$170	► Estimated Yearly Maintenance Cost
$400	► Estimated Yearly Insurance Cost

The following information concerning the lease car is then requested:

$200	► Monthly Lease Payment
36	► Length of the Lease in Months
	► Is Maintenance Included in the Lease?
Y	► If yes, next question is Insurance. If no:
	► Estimated Yearly Maintenance Costs
	► Is Insurance Included in the Lease?
Y	If yes, next entry is Resale Value, If no:
	► Estimated Yearly Insurance Cost

Next, this information is needed:

$1700	► Expected Resale Value of the Purchase Car After Term of Lease
6	► Annual Percent Interest Rate on Your Savings Account
365	► Number of Times Per Year Savings Account Interest is Compounded
28	► Your Federal Income Tax Bracket in Percent

Your first results show the costs (present value) of buying the car.

+ $ 600.00	◄ Down Payment
+ $5614.96	◄ Loan Payments
+ $1095.35	◄ Insurance
+ $ 465.68	◄ Maintenance
− $ 218.01	◄ Tax Savings
− $1419.98	◄ Resale Value
+ $6138.00	

The second solution display gives you the present value of the lease payments, insurance payments, and maintenance costs. *Note:* The lease option has no tax benefits because the program assumes the car is not rented for business use.

+ $6572.78	◄ Lease Payments
+ $ 0.00	◄ Insurance
+ $ 0.00	◄ Maintenance
+ $6572.78	

The final results tell you which car costs less in terms of present value.

$434.78 ◄ The Cost of the Purchase Car Is Less

Keep Present Car or Buy a New One This program helps you compare the costs of keeping your present car versus the costs of buying a new one in terms of present value dollars.

The inputs for the present car consist of:

Y ► Is There a Lien Against Your Present Car?
  If no, next entry is Market Value. If yes:
$2453.67 ► Loan Balance
$161.02 ► Size of Monthly Payments
10 ► Annual Percent Interest Rate
$4000 ► Present Market Value
$250 ► Estimated Yearly Maintenance Cost
$300 ► Estimated Yearly Insurance Cost

Then supply this information for the new car being considered:

$6200 ► Purchase Price
$1250 ► Down Payment Including Any Trade-In
42 ► Number of Monthly Payments
10 ► Annual Percent Interest Rate
$50 ► Estimated Yearly Maintenance Cost
$325 ► Estimated Yearly Insurance Cost

After entering the information for both cars, supply the following:

2 ► Number of Years in This Analysis
 ► Estimated Resale Value After Analysis Period
$3350   Present Car
$4800   New Car
6 ► Annual Percent Interest Rate on Your Savings Account
12 ► Number of Times Per Year Savings Account Interest is Compounded
28 ► Your Federal Income Tax Bracket in Percent

The program now supplies the cost comparison information. First you see the present value costs for keeping your car.

+ $ .00	◄ Down Payment
+ $2524.05	◄ Loan Payments
+ $ 564.07	◄ Insurance
+ $ 469.98	◄ Maintenance
− $ 47.75	◄ Tax Savings
− $2972.07	◄ Resale Value
+ $ 538.28	

Next, the costs of buying the new car are outlined.

+ $1250.00	◄ Down Payment
+ $5233.22	◄ Loan Payments
+ $ 611.00	◄ Insurance
+ $ 94.09	◄ Maintenance
− $ 192.53	◄ Tax Savings
− $4258.49	◄ Resale Value
+ $2737.29	

Then, the cash difference between the old car market price and the loan balance is compared to the new car cost to arrive at the net present value cost of the new car.

+ $2737.29	◄ Previous Total
− $1546.33	◄ Cash From Sale of Present Car
+ $1190.96	

The net cost of keeping the old car ($538.28) is then compared to the net cost of buying the new car ($1190.96), and the result is shown.

$652.68	◄ Cost of Keeping Present Car is Less

Keep Present Car or Lease a Car

This program compares the present value costs of keeping your car versus the costs of leasing a car. This comparison is automatically made for the time period of the lease.

First supply the following information about your present car:

Y	► Is There a Lien Against Your Present Car?
	If no, next entry is Maintenance Cost. If yes:
$1788.54	► Loan Balance
$157.25	► Size of Monthly Payments
10	► Annual Percent Interest Rate
$2400	► Present Market Value
$300	► Estimated Yearly Maintenance Cost
$300	► Estimated Yearly Insurance Cost

Next enter this information concerning the lease car:

$225	► Monthly Lease Payment
36	► Length of Lease in Months
Y	► Is Maintenance Included in the Lease?
	If yes, next question is Insurance. If no:
	► Estimated Yearly Maintenance Cost
Y	► Is Insurance Included in the Lease?
	If yes, next entry is Resale Value. If no:
	► Estimated Yearly Insurance Cost

Then enter this data:

$895	► Expected Resale Value of Your Present Car After Term of the Lease
6	► Annual Percent Interest Rate on Your Savings Account
12	► Number of Times Per Year Savings Account Interest is Compounded
28	► Your Federal Income Tax Bracket in Percent

After entering the above information, the following sets
of results are displayed. The first shows the present
value costs of keeping your car over the time period of
the lease.

$ .00	◄ Down Payment
+ $1826.97	◄ Loan Payment
+ $ 821.78	◄ Insurance
+ $ 821.78	◄ Maintenance
− $ 25.94	◄ Tax Savings
− $ 747.90	◄ Resale Value
+ $2696.69	

Next you see the cost of the lease.

+ $7395.98	◄ Lease Payments
$ .00	◄ Insurance
$ .00	◄ Maintenance
$7395.98	
− $ 611.46	◄ Cash From Sale of Present Car
$6784.52	

Finally the two costs are compared with the difference
begin displayed.

$4087.83	◄ Cost of Keeping Present Car is Less

Early Payoff This program computes the amount necessary to pay
off the car loan early. Compound interest techniques
are used.

You need to supply the following information:

$5000	► Amount Borrowed
10	► Annual Percent Interest Rate
14	► Number of Monthly Payments You Have Made
$141.58	► Size of Monthly Payments

These results are then displayed:

$3522.86	◄ Amount Needed to Pay Off the Loan
$ 504.98	◄ Total Interest Paid

SAVINGS

This section of the Home Financial Decisions Command Module performs four types of Savings Account analyses.

```
                    SAVINGS
    PRESS
        1    FOR FUTURE AMOUNT IN
                 ACCOUNT
        2    SIZE OF DEPOSITS
                 TO REACH GOAL
        3    AMOUNT OF TIME
                 TO REACH GOAL
        4    AMOUNT NEEDED FOR
                 REGULAR WITHDRAWAL
```

Note: These are all computed using compound interest techniques based on payments into the account at the *beginning* of each compounding period.

Future Amount in Account

This program computes the total amount of money that will be in a savings account at a specified future time. Two deposit options are available — regular deposits to the account, or, no deposits to the account with interest only added as it accrues.

You will need to enter the following information:

$100	► Present Amount in Account
6	► Annual Percent Interest Rate
12	► Number of Times Per Year Savings Account Interest is Compounded
Y	► Do You Make Regular Deposits? If no, next entry is Number of Compounding Periods. If yes:
$150	► Amount of Regular Deposits
24	► Number of Regular Deposits Per Year
72	► Number of Regular Deposits in This Analysis

With regular deposits to the account, the balance after the last deposit is shown:

$11964.73   ◄ Amount in Your Account After Specified Number of Deposits

If no deposits are made to the account, the present amount is compounded over the periods entered for the final value displayed.

36   ► Number of Compounding Periods in This Analysis

$119.67   ◄ Amount in Your Account After Specified Number of Compounding Periods

Size of Deposits to Reach Goal

This program computes the size of the regular deposits needed for a savings account to grow to a pre-specified savings goal.

The information needed is as follows:

$5000   ► Present Amount in Account

$6000   ► Amount of Savings Goal

6   ► Annual Percent Interest Rate

12   ► Number of Times Per Year Savings Account Interest is Compounded

Y   ► Do You Make Regular Deposits?
      If no, see Note below. If yes:

12   ► Number of Regular Deposits Per Year

12   ► Number of Regular Deposits in This Analysis

With regular deposits, the amount necessary for each deposit is now displayed:

12   ◄ Number of Deposits

$55.79   ◄ Amount of All But the Last Deposit

$55.76   ◄ Amount of the Last Deposit

Note: If no deposits are made to the account, the program cannot compute the size of the regular deposits needed to reach the goal. However, the program asks for the number of compounding periods desired and then computes the size of the initial balance needed to reach the goal.

12	► Number of Compounding Periods in This Analysis
$5651.43	◄ Initial Balance Needed

Amount of Time to Reach Goal

With this program you can determine the number of interest compounding periods required to reach a desired savings goal. This computation can be based on making regular deposits to the account, or on letting a starting balance gain interest to reach the savings goal.

Enter this information:

$1000	► Present Amount in Account
$1575	► Amount of Savings Goal
6	► Annual Percent Interest Rate
12	► Number of Times Per Year Interest is Compounded
Y	► Do You Make Regular Deposits?
	If no, see Number of Compounding Periods below. If yes:
25	► Amount of Regular Deposits
12	► Number of Regular Deposits Per Year

If regular deposits are made, you see these results:

19	◄ Number of Deposits
$25.00	◄ Amount of All But the Last Deposit
$ 1.24	◄ Amount of Last Deposit

If no deposits are made, the number of compounding periods required is displayed:

92	◄ Number of Compounding Periods to Reach Goal

TEXAS INSTRUMENTS
HOME COMPUTER

Amount
Needed
For Regular
Withdrawal

This program can be used to help establish a savings goal by determining the amount needed in a savings account to permit a series of specified regular withdrawals for car payments, school, retirement, etc. while the declining balance continues to draw interest.

You need to input this information:

$100   ► Amount of Regular Withdrawal

52   ► Number of Withdrawals Per Year

1040   ► Number of Withdrawals in This Analysis

8   ► Annual Percent Interest Rate

12   ► Number of Times Per Year Interest is Compounded

The results give you a summary of your planned withdrawals followed by the dollar value of the starting amount needed in your savings account:

$52019.22   ◄ Amount Needed to Make Specified Withdrawals

SELECTED BIBLIOGRAPHY

1. Greynolds, Elbert B., Jr.; Aronofsky, Julius S.; and Frame, Robert J. *Financial Analysis Using Calculators: Time Value of Money.* McGraw-Hill Book Company, 1980.

2. Hoagland, Henry E.; Stone, Leo D.; and Bruggeman, William B. *Real Estate Finance, Sixth Ed.* Homewood, Illinois: Richard D. Irwin, Inc., 1977.

3. Kinnard, William N., Jr. *Income Property Valuation.* Lexington, Massachusetts: Heath Lexington Books, 1976.

4. Farish, Roger F. and Greynolds, Elbert B., Jr. *Calculator Analysis for Business and Finance.* McGraw-Hill Book Company, 1978.

CARING FOR THE COMMAND MODULE

Command Modules are durable devices, but they should be handled with the same care you would give any other piece of electronic equipment. Keep the module and its recessed contacts clean and dry.

CAUTION:
The contents of a Command Module can be damaged by static electricity discharges.

Static electricity build-ups are more likely to occur when the natural humidity of the air is low (during winter, for example, or in very dry climates). To avoid possible damage to the Command Module, touch any metal object (doorknob, desklamp, etc.) before handling the module. Always use this method to ensure that both you and the module are free of static electricity before you install the module on the console.

If static electricity is a problem in your area, you may want to purchase a special carpet treatment that reduces static electricity build-up. These commercial preparations are usually available from local hardware and office supply stores.

IN CASE OF DIFFICULTY

If the module activities do not appear to be operating properly return to the master title screen by pressing **SHIFT Q.** Withdraw the module, align it with the module opening, and reinsert it carefully. Then press any key to make the master selection list appear. Repeat the selection process. (*Note:* In some instances, it may be necessary to turn the computer off, wait several seconds, and then turn it on again.)

An automatic reset feature is built into the computer. Any time a module is inserted into the console, the computer should return to the master title screen. (*Note:* All data or program material you have entered will be erased.) If the module is accidently removed from the slot while the module contents are being used, the computer may behave erratically. To restore the computer to normal operation, turn the computer console off, wait a few seconds, reinsert the module, and turn it on again.

If you have any difficulty with your computer or the Home Financial Decision Module, please contact the dealer from whom you purchased the unit and/or module for service directions.

Additional information concerning use and service can be found in your *User's Reference Guide.*

THREE-MONTH LIMITED WARRANTY
HOME COMPUTER SOFTWARE MODULE

Texas Instruments Incorporated extends this consumer warranty only to the original consumer purchaser.

WARRANTY COVERAGE

This warranty covers the electronic and case components of the software module. These components include all semiconductor chips and devices, plastics, boards, wiring and all other hardware contained in this module ("the Hardware"). This limited warranty does not extend to the programs contained in the software module and in the accompanying book materials ("the Programs").

The Hardware is warranted against malfunction due to defective materials or construction. **THIS WARRANTY IS VOID IF THE HARDWARE HAS BEEN DAMAGED BY ACCIDENT OR UNREASONABLE USE, NEGLECT, IMPROPER SERVICE OR OTHER CAUSES NOT ARISING OUT OF DEFECTS IN MATERIAL OR CONSTRUCTION.**

WARRANTY DURATION

The Hardware is warranted for a period of three months from the date of the original purchase by the consumer.

WARRANTY DISCLAIMERS

ANY IMPLIED WARRANTIES ARISING OUT OF THIS SALE, INCLUDING BUT NOT LIMITED TO THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, ARE LIMITED IN DURATION TO THE ABOVE THREE-MONTH PERIOD. TEXAS INSTRUMENTS SHALL NOT BE LIABLE FOR LOSS OF USE OF THE HARDWARE OR OTHER INCIDENTAL OR CONSEQUENTIAL COSTS, EXPENSES, OR DAMAGES INCURRED BY THE CONSUMER OR ANY OTHER USER.

Some states do not allow the exclusion or limitation of implied warranties or consequential damages, so the above limitations or exclusions may not apply to you in those states.

LEGAL REMEDIES

This warranty gives you specific legal rights, and you may also have other rights that vary from state to state.

PERFORMANCE BY TI UNDER WARRANTY

During the three-month warranty period, defective Hardware will be replaced when it is returned postage prepaid to a Texas Instruments Service Facility listed below. The replacement Hardware will be warranted for a period of three months from date of replacement. Other than the postage requirement, no charge will be made for replacement.

TI strongly recommends that you insure the Hardware for value prior to mailing.

TEXAS INSTRUMENTS CONSUMER SERVICE FACILITIES

U.S. Residents:
Texas Instruments Service Facility
P.O. Box 2500
Lubbock, Texas 79408

Canadian Residents:
Geophysical Services Incorporated
41 Shelley Road
Richmond Hill, Ontario, Canada L4C5G4

Consumers in California and Oregon may contact the following Texas Instruments offices for additional assistance or information.

Texas Instruments Consumer Service
831 South Douglas Street
El Segundo, California 90245
(213) 973-1803

Texas Instruments Consumer Service
6700 Southwest 105th
Kristin Square, Suite 110
Beaverton, Oregon 97005
(503) 643-6758

IMPORTANT NOTICE OF DISCLAIMER REGARDING THE PROGRAMS

The following should be read and understood *before* purchasing and/or using the software module.

TI does not warrant the Programs will be free from error or will meet the specific requirements of the consumer. The consumer assumes complete responsibility for any decisions made or actions taken based on information obtained using the Programs. Any statements made concerning the utility of the Programs are not to be construed as express or implied warranties

TEXAS INSTRUMENTS MAKES NO WARRANTY, EITHER EXPRESSED OR IMPLIED, INCLUDING BUT NOT LIMITED TO ANY IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, REGARDING THE PROGRAMS AND MAKES ALL PROGRAMS AVAILABLE SOLELY ON AN "AS IS" BASIS.

IN NO EVENT SHALL TEXAS INSTRUMENTS BE LIABLE TO ANYONE FOR SPECIAL, COLLATERAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES IN CONNECTION WITH OR ARISING OUT OF THE PURCHASE OR USE OF THE PROGRAMS AND THE SOLE AND EXCLUSIVE LIABILITY OF TEXAS INSTRUMENTS, REGARDLESS OF THE FORM OF ACTION, SHALL NOT EXCEED THE PURCHASE PRICE OF THE SOFTWARE MODULE. MOREOVER, TEXAS INSTRUMENTS SHALL NOT BE LIABLE FOR ANY CLAIM OF ANY KIND WHATSOEVER BY ANY OTHER PARTY AGAINST THE USER OF THE PROGRAMS.

Some states do not allow the exclusion or limitation of implied warranties or consequential damages, so the above limitations or exclusions may not apply to you in those states.

Texas Instruments invented the integrated circuit,
the microprocessor, and the microcomputer.
Being first is our tradition.

Texas Instruments

INCORPORATED