BASIC
SOFTWARE
LIBRARY

VOLUME VIII

HOMEOWNERS

PROGRAMS

by   R. W. BROWN

BASIC

SOFTWARE

LIBRARY

VOLUME VIII

HOMEOWNERS

PROGRAMS

THIS BASIC SOFTWARE LIBRARY IS MADE AVAIL
ABLE, FREE OF RESTRICTIONS AND ROYALTIES
TO SCHOOLS, COLLEGES, UNIVERSITIES, INDI-
VIDUALS, HOBBYIST & BUSINESS CONCERNS FOR
USE ON THEIR OWN COMPUTERS AND OR COMPUT-
ING SYSTEMS. REPRODUCTION IN ANY PART OR
FORM OF THIS ENTIRE LIBRARY IS STRICTLY
FORBIDDEN. USE OF ANY PART OR FORM OF THIS
ENTIRE LIBRARY FOR COMMERCIAL USE OF ANY
KIND IS STRICTLY FORBIDDEN WITHOUT THE EX
PRESSED WRITTEN PERMISSION OF SCIENTIFIC
RESEARCH.

1ST. PRINTING - - MARCH 1978

INTRODUCTION

The programs presented here are set out for the individual who has a specific need in mind. Because a detailed discussion of these programs would require a text several times the present size of this Library it has been omitted. Individuals who have a specific requirement will have to be at least knowledgeable in the area the program is written about; ie: Statistical programs require the user to be familiar with the terms mean, median, etc. This is because the programs are written in the vernacular of their subject matter. With this knowledge alone, no programming experience on the part of the user is required in order to use any of these programs in most systems. Once it is determined that a particular program may be useful the user merely types in a copy of the BASIC source code exactly as it appears in the program listing. Then follow the instructions for running the program as presented in the Instruction portion of the write up, immediately preceding the program. Also included in the write ups are statements that appear in the source code which may possibly need to be changed to run in the user's computer system; ie: RND statements may have to be changed to FRAND in order to compile in certain systems.

PUBLISHERS NOTE: Appendix B included at the end of Volume V was not mentioned in the preface by the author. We feel this appendix is the most important single item included in this library. We see this appendix as a fore runner that might lead the way toward standardizing a computer language among the manufacturers. This is in addition to the obvious benefits to all users of this Basic Software Library.

TABLE of CONTENTS

VOLUME ONE

Preface

Part 1 - Business & Personal Bookkeeping Programs

Part 2 - Games & Pictures

TABLE of CONTENTS

VOLUME ONE (CONT.)

PICTURES

TABLE of CONTENTS

VOLUME TWO

Part 3 - Math & Engineering Programs

TABLE of CONTENTS

TABLE of CONTENTS

TABLE OF CONTENTS

VOLUME FOUR

General Purpose Programs

TABLE OF CONTENTS

VOLUME FIVE

Experimenter's Programs

TABLE of CONTENTS

VOLUME FIVE (CONT.)

Experimenter's Programs

APPENDIX B - STATEMENT CONVERSION ALGORITHMS

TABLE of CONTENTS

VOLUME SIX

A Complete Business System

TABLE of CONTENTS

VOLUME SEVEN

Professional Programs

TABLE of CONTENTS

TABLE of CONTENTS

PREFACE

The information contained in these pages represents the culmination of a
very large project. That of compiling a versatile and complete Software
Library that will be of use to a large number of diverse individuals. The
programs presented here when combined in a system will represent a very
powerful library bank. Such a work as this has been attempted in the past
in such areas as cook books, electronic source books, mathematical tables
and even computer games. But to date such a collection as this has yet to
be offered to the average individual to use as he chooses. The word "at -
temped" was used as no work is ever considered complete by everyone regar
dless of its thoroughness.

The programs presented here were chosen for their uniqueness and general
usefulness. There should be at least one program included that will be of
use to every type of individual whether they have access to a computer or
not. Computers are a wonderful and very useful tool. Through this Library
I hope to interest more people into becoming involved with computers. The
Library is written so that little or no computer programming experience
is required to invoke any of the programs. The programs that are present-
ed here are all written in the computer language called BASIC. Each pro -
gram has been successfully run on a G.E. 635 computer. The entire source
code is presented as well as a short narrative page which defines the pro
gram, tells who might be interested in using it, a brief set of instruc-
tions or how to get them and then any limitations in the program are no-
ted. In the limitations section the storage length in K Bytes is given so
the prospective user will know how much memory to allow for the program.
Where possible the amount of memory space required for full execution is
given for the programs, this space is independent of the space already oc
cupied by your BASIC compiler.

The programs are broken down into five sections or parts. Each part deals
with a specific type of program. Part 1 contains business type programs.
These programs will be of interest to individuals who have businesses,
play the stock market, balance their own checkbooks, do installment buy-
ing, figure taxes, etc. There are a total of 20 programs in this section.
Part 2 is the lighter side of the Library as it contains 16 games and 12
picture programs. No computer library is complete without some fun. Among
the games presented in this section is one called Checkers. The game is
rather long but it is virtually machine independent as it doesn't use over
lay techniques or use files. Most of the other games included here are as
exciting as this version of Checkers. Each was chosen so as not to mimic
others that the reader may have seen. The pictures are as unusual in their
own way as are the games. Most of the pictures are spread over several pa
ges, this was done not only so the reader will need to run the program to
see the details of a particular picture but also in the hopes of getting
as many of these programs into use as possible. As the picture programs
are very simple it is an easy place for the novice to start learning about
programming.

Part 3 is comprised of Math and Engineering programs. Some of these programs
will be of use to high school students, professional people, sailors, engi-
neers, astronomers, airplane pilots, etc. Most of these programs are very

technical but they can perform every day calculations quickly and easily and they are extremely simple to use. There are 23 general usage programs presented in this section.

Part 4 is made up of Plotting and Statistical Analysis programs. These programs can be readily utilized by a number of people in widely different disciplines from fishermen to statisticians. The data gathered may be from a poll, a census, a test sample or even the number of fish caught on various days. The stat programs will be of invaluable aid to anyone who gathers data of any kind. The plotting routines will be of use to most of the people who use the stat programs or programs in Parts 1 and 3. The plotting is done on any standard teletype or terminal and does not require a special plotter or plotting terminal. There are a total of five direct plotting programs and 18 stat programs in this section.

All of the programs presented here may be run by simply typing the source code as listed, exactly as it is, into your computer. Now before the program will run it will have to be converted into machine code. This is done automatically and requires no forethought except to make certain the operating system you are working in is BASIC. In the larger computer systems you are asked what system you want — to this type BASIC; the smaller systems only have BASIC, in these you are O.K.

Immediately following Part 4 is Appendix A. Here, all of the Basic Statements used throughout these pages are defined. Each statement is explained sufficiently well to enable one unfamiliar with this subset to modify any necessary statements so that the program or programs will compile and execute with the Basic compiler or interpreter available with their particular computer. Most of the Basic compilers available today, that require more then 10K Bytes of storage, will execute all of the programs presented in these volumes with the possible exception of a few of the games and the program "Variable". Multiple line statements are not used in most of the programs and only a few programs use string manipulations extensively. A few of the programs may require more on line storage then is available on some of the small micro computer systems; these longer programs will not be executable due to the limited amount of memory. However most of the programs will execute in 10K Bytes of memory or less, thereby making most of the programs in this Library executable in virtually any Basic speaking computer without any required modifications.

Volume III is comprised of ADVANCED BUSINESS programs, part 5. This volume as well as subsequent volumes are intended to make this Library complete and useful to all individuals.

Each of these programs are written in a subset of the Dartmouth language. The specific subset is that which was used by General Electric on their 635 systems. These programs have operated without problem on a variety of small and large machines even several of the new micro computers. The programs that use string manipulations may require slight modifications before fully executing on some systems. These programs are mainly found in Part 2 — Games.

All of the programs in this Library were written or edited by the author.
All of the programs edited by him were given for inclusion, "swapped" for
traded, or made public. A few of the original authors of the "swaps" are
not known, for this I apologize. The others, unless specifically mentioned
in the text, are presented here. In addition I would like to thank the fol
lowing for their cooperation in making this work possible.
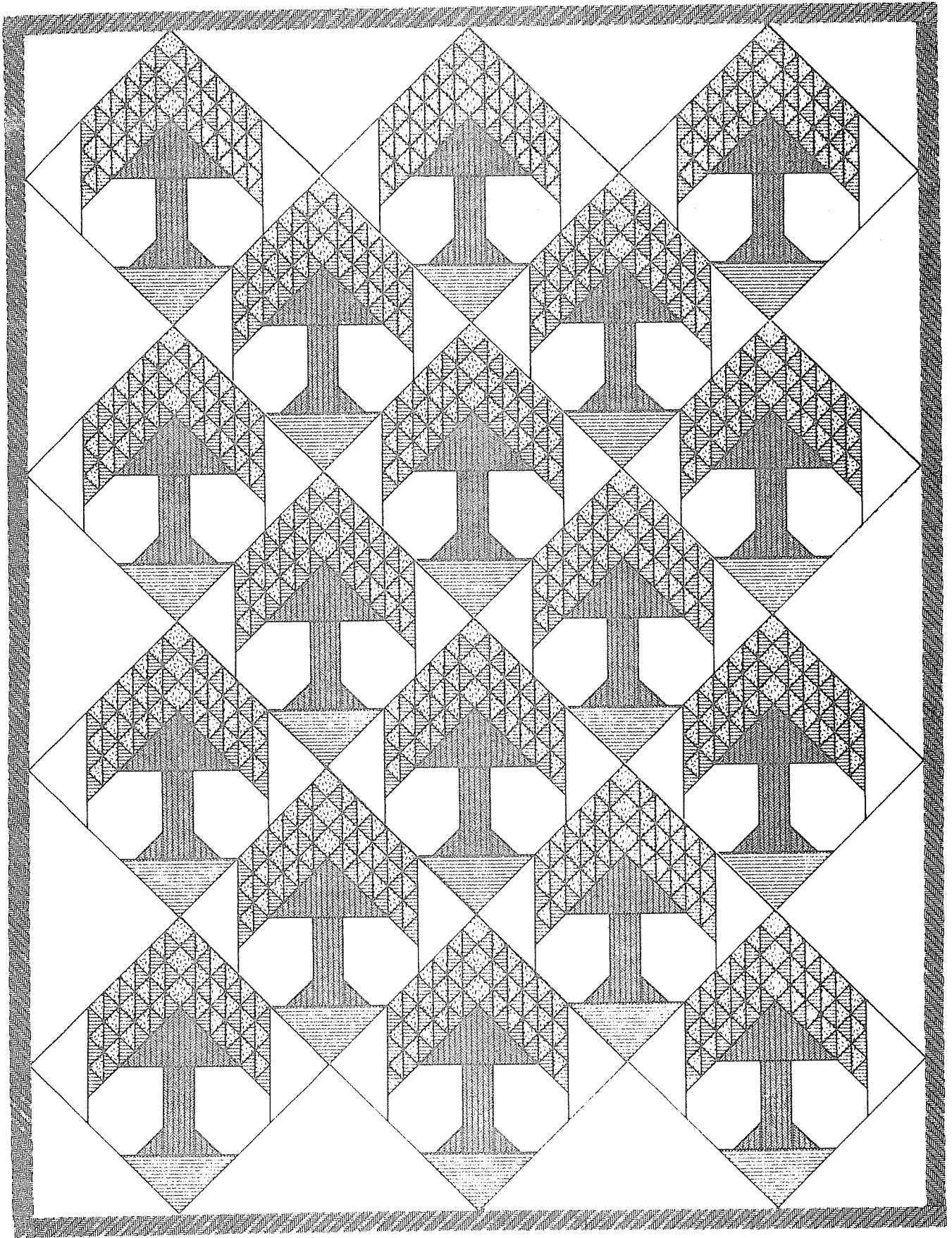
HOME OWNERS

PROGRAMS

1040 - TAX:

DESCRIPTION

This program is designed to aid you in preparing your Federal Tax Return. It will allow you the user to itemize your deductions or use the standard deduction as revised under the new tax laws for 1977. If your deductions are itemized this program will check your totals to see if they are within the norm for your income. Should your deduction totals exceed the norm for your income then your chances of being audited increase.

USERS

All taxpayers required to file a tax return and owning a computer system. This program should execute in most of the small micro-computer systems presently on the market.

INSTRUCTIONS

After loading the program into your computer just type RUN. The program is tutorial and will ask for all required data.

LIMITATIONS

Following the source code listing for this program are two examples of the program in operation, you should study these examples before running your taxes. You will need to look up data in the sales tax, gasoline tax and tax rate tables so be sure they are handy when you run the program. After the program has finished your taxes simply transfer the numbers from the print-out to the appropriate line on the tax schedules. This program does not use double precision variables as most of the small systems cannot support double precison. The source code is 12K Bytes long and the program should execute in 13K Bytes of available memory in most systems.

UCC COPYRIGHT 1978
BY SCIENTIFIC RESEARCH

```
100    REM   THIS IS THE 1040 TAX PROGRAM
110    REM   WRITTEN BY ROGER W. BROWN
120    REM   EDITED BY JOHN W. SWAIN
130    REM   UCC COPYRIGHT 1978 - BY - SCIENTIFIC RESEARCH
140    REM   THIS PROGRAM MAY NOT BE REPRODUCED OR SOLD
150    PRINT"UCC COPYRIGHT 1978 - BY - SCIENTIFIC RESEARCH"
160    PRINT
170    PRINT
180    PRINT"1040 FEDERAL TAX PROGRAM INCLUDING SCHEDULE 'A' AND SUPPLE
       MENTAL"
190    PRINT"SCHEDULES 'B', 'C', 'D', AND 'F'.
200    PRINT
210    PRINT
220    PRINT"ANSWER ALL QUESTIONS.  IF IT DOESN'T APPLY, OR YOU DON'T H
       AVE"
230    PRINT"INCOME OR EXEMPTIONS FOR THIS ITEM, ENTER A '0' UNLESS THE"
240    PRINT"QUESTION REQUIRES A 'YES' OR 'NO' ANSWER."
250    PRINT
260    PRINT
270    PRINT"THE 1040 FORM WILL BE DONE FIRST.
280    PRINT
290    PRINT
300    REM   QUESTION SECTION
310    M=0
320    J=0
330    PRINT
340    PRINT"ARE YOU MARRIED";
350    INPUT Y$
360    PRINT
370    IF LEFT$(Y$,1)<>"Y" THEN 440
380    M=1
390    PRINT
400    PRINT"ARE YOU FILING A JOINT RETURN";
410    INPUT Y$
420    PRINT
430    IF LEFT$(Y$,1)="Y" THEN J=1
440    PRINT"HOW MANY OTHER DEPENDENTS DO YOU CLAIM";
450    INPUT D1
460    PRINT
470    IF J=0 THEN 500
480    D=D1+2
490    GOTO 510
500    D=D1+1
510    PRINT"ARE YOU OR YOUR SPOUSE (IF FILING JOINT RETURN) OVER 65,"
520    PRINT"        ENTER A 0, 1, OR 2";
530    INPUT E1
540    PRINT
550    PRINT"ARE YOU OR YOUR SPOUSE (IF FILING JOINT RETURN) BLIND,"
560    PRINT"        ENTER A 0, 1, OR 2";
570    INPUT B1
580    PRINT
590    E1=E1+B1
600    REM   E1 = # OF SPECIAL EXEMPTIONS
610    D2=D+E1
620    REM   IF M=1 THEN MARRIED
```

```
630    REM   IF J=1 THEN FILING JOINT RETURN
640    PRINT"WHAT IS THE GROSS WAGES ON YOUR W-2'S";
650    INPUT G1
660    PRINT
670    PRINT"WHAT IS YOUR FEDERAL WITHOLDING";
680    INPUT F1
690    PRINT
700    IF J=0 THEN 770
710    PRINT"WHAT IS YOUR SPOUSE'S GROSS WAGES";
720    INPUT G2
730    PRINT
740    PRINT"WHAT HAS YOUR SPOUSE PAID INTO FEDERAL TAXES";
750    INPUT F2
760    PRINT
770    PRINT"ENTER ALL INERESTS RECEIVED  (FROM SCHEDULE 'B')";
780    INPUT I1
790    PRINT
800    PRINT"ENTER ALL DIVIDENDS RECEIVED  (FROM SCHEDULE 'B')";
810    INPUT D3
820    PRINT
830    G1=G1+G2
840    F1=F1+F2
850    PRINT"DID YOU ITEMIZE YOUR DEDUCTIONS ON YOUR FEDERAL RETURN LAS
       T YEAR";
860    INPUT Y$
870    PRINT
880    IF LEFT$(Y$,1)<>"Y" THEN 930
890    PRINT"HOW MUCH STATE AND LOCAL TAX REFUNDS DID YOU RECEIVE FROM"
900    PRINT"LAST YEARS TAXES";
910    INPUT S3
920    PRINT
930    PRINT"HOW MUCH ALIMONY DID YOU RECEIVE";
940    INPUT S4
950    PRINT
960    PRINT"HOW MUCH BUSINESS INCOME OR LOSS DID YOU RECEIVE.  IF LOSS
       ,"
970    PRINT"      ENTER A NEGATIVE AMOUNT.";
980    INPUT S5
990    PRINT
1000   PRINT"HOW MUCH DID YOU GAIN OR LOOSE FROM SALE OR EXCHANGE OF"
1010   PRINT"CAPITAL ASSETS.  IF LOSS, ENTER A NEGATIVE AMOUNT";
1020   INPUT S6
1030   PRINT
1040   PRINT"DID YOU HAVE ANY FARM INCOME OR LOSS.  IF LOSS ENTER"
1050   PRINT"A NEGATIVE AMOUNT";
1060   INPUT S7
1070   PRINT
1080   S8=G1+I1+D3+S3+S4+S5+S6+S7
1090   PRINT"ENTER ANY MOVING EXPENSE YOU HAD.  (INCLUDE WITH YOUR RETU
       RN"
1100   PRINT"A '3903' FORM IF ANY)";
1110   INPUT M1
1120   PRINT
1130   PRINT"ENTER PAYMENTS TOWARD A RETIREMENT PLAN.  (ATTACH FORM '53
       29' IF"
```

```
1140    PRINT"YOU QUALIFY)";
1150    INPUT D4
1160    PRINT
1170    PRINT"ENTER ANY ALIMONY PAYMENTS YOU HAVE MADE AND ARE ENTITLED
         TO";
1180    INPUT D5
1190    PRINT
1200    D6=D5+D4+M1
1210    D7=S8-D6
1220    PRINT"DID YOU RECEIVE ANY DISABILITY INCOME.  (IF NONE, ENTER A
         '0',"
1230    PRINT"OTHERWISE, ENTER THE AMOUNT)";
1240    INPUT D8
1250    PRINT
1260    PRINT
1270    PRINT"THIS COMPLETES SIDE '1' OF THE 1040 FORM.  NOW WE WILL DO"
1280    PRINT"THE REVERSE SIDE."
1290    PRINT
1300    PRINT
1310    PRINT
1320    D9=D7-D8
1330    IF D9>8000 THEN 1540
1340    IF M=1 AND J=1 THEN 1370
1350    IF M=1 THEN 1540
1360    PRINT
1370    PRINT"DID YOU EARN ANY INCOME FROM U. S. POSSESSIONS OR"
1380    PRINT"FROM ABROAD";
1390    INPUT Y$
1400    PRINT
1410    IF LEFT$(Y$,1)="Y" THEN 1540
1420    PRINT"DO YOU HAVE DEPENDENT CHILDREN";
1430    INPUT Y$
1440    PRINT
1450    IF LEFT$(Y$,1)<>"Y" THEN 1540
1460    D0=G1-D8+S5
1470    C1=D0*.1
1480    IF C1>400 THEN C1=400
1490    IF D0<D9 THEN D0=D9
1500    IF D0<4000 THEN 1540
1510    D0=D0-4000
1520    C2=D0*.1
1530    C1=C1+C2
1540    PRINT"ENTER ANY ESTIMATED TAX PAYMENTS YOU MADE FOR LAST YEAR";
1550    INPUT F2
1560    PRINT
1570    F4=F1+F2+C1
1580    PRINT"ENTER THE AMOUNT OF CREDIT FOR THE ELDERLY";
1590    INPUT I1
1600    PRINT
1610    PRINT"ENTER THE AMOUNT OF CREDIT FOR CHILD CARE.  (ATTACH FORM"
1620    PRINT"2441 TO RETURN)";
1630    INPUT I2
1640    PRINT
1650    PRINT"ENTER THE AMOUNT OF INVESTMENT CREDIT";
1660    INPUT I3
```

```
1670    PRINT
1680    I4=I1+I2+I3
1690    PRINT
1700    PRINT
1710    PRINT
1720    PRINT
1730    PRINT"THIS COMPLETES THE 1040 QUESTION AND ANSWER SECTION.  SCHED
        ULE 'A'"
1740    PRINT"WILL BE DONE NEXT."
1750    PRINT
1760    PRINT
1770    PRINT
1780    PRINT
1790    REM  THIS IS SCHEDULE  'A'  SECTION
1800    PRINT
1810    PRINT
1820    PRINT"IF YOU DON'T WANT TO ITEMIZE YOUR TAXES, TYPE A '0' OTHERWI
        SE"
1830    PRINT"TYPE A '1'";
1840    INPUT TZ
1850    IF TZ=0 THEN 3180
1860    PRINT"MEDICAL EXPENSES WILL BE DONE FIRST."
1870    PRINT
1880    PRINT
1890    PRINT
1900    PRINT"ENTER YOUR TOTAL MEDICAL INSURANCE PREMIUMS.  THE PROGRAM W
        ILL"
1910    PRINT"CALCULATE THE CORRECT AMOUNT AND ENTER IT INTO THE FORM";
1920    INPUT W9
1930    PRINT
1940    P1=W9/2
1950    IF P1>150 THEN P1=150
1960    PRINT"HOW MUCH DID YOU PAY FOR PRESCRIPTIONS";
1970    INPUT P2
1980    PRINT
1990    P3=D9*.01
2000    P4=P2-P3
2010    IF P4<0 THEN P4=0
2020    PRINT"ENTER ALL OTHER MEDICAL EXPENSES AND MISC. CHARGES";
2030    INPUT P5
2040    PRINT
2050    P6=P4+P5-P1+W9
2060    P7=D9*.03
2070    P8=P6-P7
2080    IF P8<0 THEN P8=0
2090    P9=P8+P1
2100    PRINT
2110    PRINT
2120    IF P9>550 THEN GOSUB 5770
2130    PRINT"TAX EXPENSES WILL BE DONE NEXT."
2140    PRINT
2150    PRINT
2160    PRINT"ENTER THE TOTAL STATE AND LOCAL INCOME TAXES WITHELD";
2170    INPUT Q1
2180    PRINT
```

```
2190    PRINT"ENTER THE REAL ESTATE TAXES PAID";
2200    INPUT Q2
2210    PRINT
2220    PRINT"LOOK UP THE GASOLINE TAX YOU ARE ENTITLED TO IN THE TAX"
2230    PRINT"TABLE AND THEN ENTER THE AMOUNT HERE";
2240    INPUT Q3
2250    PRINT
2260    PRINT"LOOK UP THE SALES TAX CREDIT FROM THE TAX TABLE AND ENTER"
2270    PRINT"THE AMOUNT CORRESPONDING TO YOUR INCOME HERE.  (NOTE: IF Y
        OU"
2280    PRINT"HAD ANY MAJOR PURCHASES SUCH AS A CAR OR ETC.  YOU MAY ALS
        O TAKE"
2290    PRINT"AS A DEDUCTION, THE SALES TAX PAID ON THOSE ITEMS)"
2300    PRINT
2310    PRINT"ENTER THE TOTAL SALES TAX DEDUCTION HERE";
2320    INPUT Q4
2330    PRINT
2340    PRINT"ENTER ALL PERSONAL PROPERTY TAXES PAID";
2350    INPUT Q5
2360    PRINT
2370    PRINT"ENTER ANY OTHER MISC. TAXES PAID EXCEPT 'FICA' AND 'FEDERA
        L'"
2380    PRINT"THAT HAVE NOT ALREADY BEEN ENTERED";
2390    INPUT Q6
2400    PRINT
2410    Q7=Q1+Q2+Q3+Q4+Q5+Q6
2420    IF Q7>.1*D9 THEN GOSUB 5690
2430    PRINT
2440    PRINT
2450    PRINT"INTEREST EXPENSES WILL BE DONE NEXT.
2460    PRINT
2470    PRINT
2480    PRINT"ENTER THE INTEREST YOU PAID ON YOUR HOME MORTGAGE";
2490    INPUT Q8
2500    PRINT
2510    PRINT"ENTER ALL OTHER INTERESTS YOU PAID SUCH AS ON LOANS, CREDI
        T CARDS,"
2520    PRINT"AND ETC.";
2530    INPUT Q9
2540    PRINT
2550    Q0=Q8+Q9
2560    IF Q0>.1*D9 THEN GOSUB 5810
2570    PRINT
2580    PRINT
2590    PRINT"CONTRIBUTIONS WILL BE DONE NEXT."
2600    PRINT
2610    PRINT
2620    PRINT"ENTER ANY CASH CONTRIBUTIONS YOU MADE";
2630    INPUT R1
2640    PRINT
2650    PRINT"ENTER CASH VALUE OF OTHER CONTRIBUTIONS MADE SUCH AS CLOTH
        ES,"
2660    PRINT"OLD FURNITURE, AND ETC.";
2670    INPUT R2
2680    PRINT
```

UCC COPYRIGHT 1978
BY SCIENTIFIC RESEARCH

```
2690    R3=R1+R2
2700    IF R3>400 THEN GOSUB 5850
2710    PRINT
2720    PRINT
2730    PRINT"LOSSES WILL BE DONE NEXT."
2740    PRINT
2750    PRINT
2760    PRINT"ENTER ALL CASUALTY LOSSES";
2770    INPUT R4
2780    PRINT
2790    PRINT"ENTER ALL INSURANCE REIMBURSEMENTS FOR THESE LOSS  (IF ANY
        )";
2800    INPUT R5
2810    R6=R4-R5
2820    IF R6<0 THEN R6=0
2830    PRINT"ENTER $100 FOR EACH LOSS";
2840    INPUT R7
2850    PRINT
2860    IF R6=0 THEN R7=0
2870    R8=R6-R7
2880    IF R8<0 THEN R8=0
2890    IF R8>300 THEN GOSUB 5890
2900    PRINT
2910    PRINT
2920    PRINT"MISCELLANEOUS DEDUCTIONS WILL BE DONE NEXT."
2930    PRINT
2940    PRINT
2950    PRINT"ENTER ALL UNION DUES PAID";
2960    INPUT R9
2970    PRINT
2980    PRINT"ENTER ALL OTHER MISC. DEDUCTIONS SUCH AS COST OF BOOKS, UN
        IFORMS,"
2990    PRINT"TOOLS, ETC.";
3000    INPUT U1
3010    PRINT
3020    U2=R9+U1
3030    U3=P9+Q7+Q0+R3+R8+U2
3040    IF M=0 THEN 3090
3050    IF J=1 THEN U4=3200
3060    IF U4=3200 THEN 3160
3070    U4=1600
3080    GOTO 3160
3090    U4=2200
3100    PRINT"ARE YOU A QUALIFYING WIDOW OR WIDOWER WITH DEPENDENT CHILD
         OFR"
3110    PRINT"CHILDREN";
3120    INPUT Z$
3130    PRINT
3140    IF LEFT$(Z$,1)<>"Y" THEN 3160
3150    U4=3200
3160    U5=U3-U4
3170    IF U5<0 THEN U5=0
3180    U6=D9-U5
3190    PRINT
3200    Q$=" X, Y, OR Z "
```

```
3210    IF U6 > 20000 THEN 3230
3220    Q$=" A, B, C, OR D "
3230    PRINT"THE TOTAL NUMBER OF EXEMPTIONS YOU CLAIMED IS";D2
3240    PRINT"YOUR TAXABLE INCOME IS $";U6;".  LOOK UP THIS AMOUNT IN TH
        E TAX RATE"
3250    PRINT"TABLES";Q$;"AND ENTER YOUR TAX HERE";
3260    INPUT U7
3270    PRINT
3280    U8=U7-I4
3290    IF U8<0 THEN U8=0
3300    U9=F4-U8
3310    U0=U8-F4
3320    IF U9<0 THEN U9=0
3330    IF U0<0 THEN U0=0
3340    IF U9=0 THEN 3400
3350    PRINT
3360    PRINT
3370    PRINT
3380    PRINT
3390    PRINT"REFUND . . . REFUND . . OF . . . $";U9;" . . . . . . . . ."
3400    PRINT
3410    PRINT
3420    PRINT
3430    PRINT
3440    PRINT"THIS FINISHES THE QUESTIONING SECTION OF THE 1040 TAX PROG
        RAM."
3450    PRINT"NOW THE PROGRAM WILL PRINT OUT THE TOTALS TO BE USED IN"
3460    PRINT"FILLING OUT YOUR TAX FORMS.  THE '1040' FORM WILL BE"
3470    PRINT"FIRST."
3480    PRINT"DO YOU HAVE HARD COPY  (Y OR N)";
3490    INPUT Z$
3500    PRINT
3510    IF LEFT$(Z$,1)="Y" THEN 3600
3520    PRINT"HOW MANY SECONDS DELAY WOULD YOU LIKE"
3530    PRINT"BETWEEN PRINTED LINES  (0 = NO DELAY)";
3540    INPUT X1
3550    PRINT
3560    PRINT
3570    PRINT
3580    REM THIS FILLS IN THE BLANKS FOR THE 1040 AND SCHEDULE 'A'
3590    REM THIS PROGRAM FITS THE NEW 1977 TAX FORMS.
3600    PRINT"THE FOLLOWING ARE THE LINE NUMBERS AND AMOUNTS TO BE ENTER
        ED"
3610    PRINT"ON YOUR 1040 FORM."
3620    PRINT
3630    PRINT
3640    PRINT
3650    PRINT"UCC - COPYRIGHT 1978 BY - SCIENTIFIC RESEARCH"
3660    PRINT
3670    PRINT
3680    PRINT
3690    PRINT"LINE NUMBER","AMOUNT","AMOUNT"
3700    PRINT
3710    PRINTTAB(6);"7",,,D2
3720    GOSUB 5620
```

```
3730    PRINTTAB(6);"8",,G1
3740    GOSUB 5620
3750    PRINTTAB(6);"9",,I1
3760    GOSUB 5620
3770    PRINTTAB(4);"10C",,D3
3780    GOSUB 5620
3790    PRINTTAB(5);"11",,S3
3800    GOSUB 5620
3810    PRINTTAB(5);"12",,S4
3820    GOSUB 5620
3830    PRINTTAB(5);"13",,S5
3840    GOSUB 5620
3850    PRINTTAB(5);"14",,S6
3860    GOSUB 5620
3870    PRINTTAB(5);"19",,S7
3880    GOSUB 5620
3890    PRINTTAB(5);"21",,S8
3900    GOSUB 5620
3910    PRINTTAB(5);"22",M1
3920    GOSUB 5620
3930    PRINTTAB(5);"24",D4
3940    GOSUB 5620
3950    PRINTTAB(5);"27",D5
3960    GOSUB 5620
3970    PRINTTAB(5);"28",,D6
3980    GOSUB 5620
3990    PRINTTAB(5);"29",,D7
4000    GOSUB 5620
4010    PRINTTAB(5);"30",,D8
4020    GOSUB 5620
4030    PRINTTAB(5);"31",,D9
4040    GOSUB 5620
4050    PRINT
4060    PRINT
4070    PRINT"THIS IS THE END OF THE FRONT SIDE OF THE 1040 FORM.  NOW T
        HE "
4080    PRINT"BACK SIDE WILL BE FILLED IN."
4090    PRINT
4100    PRINT
4110    PRINT"UCC - COPYRIGHT 1978 BY - SCIENTIFIC RESEARCH"
4120    PRINT
4130    PRINT
4140    PRINTTAB(5);"32",,D9
4150    GOSUB 5620
4160    PRINTTAB(5);"33",,U5
4170    GOSUB 5620
4180    PRINTTAB(5);"34",,U6
4190    GOSUB 5620
4200    PRINTTAB(5);"35",,U7
4210    GOSUB 5620
4220    PRINTTAB(5);"37",,U7
4230    GOSUB 5620
4240    PRINTTAB(5);"39",,I1
4250    GOSUB 5620
4260    PRINTTAB(5);"40",,I2
```

```
4270    GOSUB 5620
4280    PRINTTAB(5);"41",,I3
4290    GOSUB 5620
4300    PRINTTAB(5);"46",,,I4
4310    GOSUB 5620
4320    PRINTTAB(5);"47",,,U8
4330    GOSUB 5620
4340    PRINTTAB(5);"54",,,U8
4350    GOSUB 5620
4360    PRINTTAB(5);"55",,F1
4370    GOSUB 5620
4380    PRINTTAB(5);"56",,F2
4390    GOSUB 5620
4400    PRINTTAB(5);"57",,C1
4410    GOSUB 5620
4420    PRINTTAB(5);"62",,,F4
4430    GOSUB 5620
4440    PRINTTAB(5);"63",,,U9
4450    GOSUB 5620
4460    PRINTTAB(5);"64",,,U9
4470    GOSUB 5620
4480    PRINTTAB(5);"66",,,U0
4490    GOSUB 5620
4500    GOSUB 5620
4510    PRINT
4520    PRINT
4530    PRINT
4540    IF TZ=0 THEN 5470
4550    PRINT
4560    PRINT"THIS END THE PRINT OUT OF THE '1040' TAX TOTALS,  THE"
4570    PRINT"FOLLOWING LINE NUMBERS WILL REFLECT THE FIGURES"
4580    PRINT"WHICH ARE USED ON SCHEDULE  'A',"
4590    PRINT
4600    PRINT
4610    PRINT
4620    PRINT
4630    PRINT"UCC - COPYRIGHT 1978 BY - SCIENTIFIC RESEARCH"
4640    PRINT
4650    PRINT
4660    PRINT
4670    PRINT"LINE NUMBER","AMOUNT"
4680    PRINT
4690    PRINTTAB(6);" 1",P1
4700    GOSUB 5620
4710    PRINTTAB(6);" 2",P2
4720    GOSUB 5620
4730    PRINTTAB(6);" 3",P3
4740    GOSUB 5620
4750    PRINTTAB(6);" 4",P4
4760    GOSUB 5620
4770    PRINTTAB(5);" 6C",P5
4780    GOSUB 5620
4790    PRINTTAB(6);" 7",P6
4800    GOSUB 5620
4810    PRINTTAB(6);" 8",P7
```

```
4820    GOSUB 5620
4830    PRINTTAB(6);"9",P8
4840    GOSUB 5620
4850    PRINTTAB(5);"10",P9
4860    GOSUB 5620
4870    PRINTTAB(5);"11",Q1
4880    GOSUB 5620
4890    PRINTTAB(5);"12",Q2
4900    GOSUB 5620
4910    PRINTTAB(5);"13",Q3
4920    GOSUB 5620
4930    PRINTTAB(5);"14",Q4
4940    GOSUB 5620
4950    PRINTTAB(5);"15",Q5
4960    GOSUB 5620
4970    PRINTTAB(5);"16",Q6
4980    GOSUB 5620
4990    PRINTTAB(5);"17",Q7
5000    GOSUB 5620
5010    PRINTTAB(5);"18",Q8
5020    GOSUB 5620
5030    PRINTTAB(5);"19",Q9
5040    GOSUB 5620
5050    PRINTTAB(5);"20",Q0
5060    GOSUB 5620
5070    PRINTTAB(5);"21",R1
5080    GOSUB 5620
5090    PRINTTAB(5);"22",R2
5100    GOSUB 5620
5110    PRINTTAB(5);"24",R3
5120    GOSUB 5620
5130    PRINTTAB(5);"25",R4
5140    GOSUB 5620
5150    PRINTTAB(5);"26",R5
5160    GOSUB 5620
5170    PRINTTAB(5);"27",R6
5180    GOSUB 5620
5190    PRINTTAB(5);"28",R7
5200    GOSUB 5620
5210    PRINTTAB(5);"29",R8
5220    GOSUB 5620
5230    PRINTTAB(5);"30",R9
5240    GOSUB 5620
5250    PRINTTAB(5);"31",U1
5260    GOSUB 5620
5270    PRINTTAB(5);"32",U2
5280    GOSUB 5620
5290    PRINTTAB(5);"33",P9
5300    GOSUB 5620
5310    PRINTTAB(5);"34",Q7
5320    GOSUB 5620
5330    PRINTTAB(5);"35",Q0
5340    GOSUB 5620
5350    PRINTTAB(5);"36",R3
5360    GOSUB 5620
```

```
5370    PRINTTAB(5);"37",R8
5380    GOSUB 5620
5390    PRINTTAB(5);"38",U2
5400    GOSUB 5620
5410    PRINTTAB(5);"39",U3
5420    GOSUB 5620
5430    PRINTTAB(5);"40",U4
5440    GOSUB 5620
5450    PRINTTAB(5);"41",U5
5460    GOSUB 5620
5470    GOSUB 5620
5480    PRINT
5490    PRINT
5500    PRINT
5510    PRINT"THIS FINISHES THE '1040' TAX PROGRAM.  NOW YOU"
5520    PRINT"MUST FILL IN THE BLANKS ON THE APPROPRIATE FORMS AND THEN
        SIGN"
5530    PRINT"THEM IN THE CORRECT PLACES.  BE SURE TO INCLUDE ANY AND AL
        L"
5540    PRINT"SUPPORTING FORMS, IF ANY, AND A CHECK IF YOU"
5550    PRINT"OWE THE GOVERNMENT ANY TAXES."
5560    PRINT
5570    PRINT"      THANK YOU FOR ALLOWING ME TO HELP YOU WITH YOUR TAXES"
5580    PRINT"THIS YEAR.
5590    PRINT
5600    PRINT
5610    GOTO 5680
5620    PRINT
5630    IF X1=0 THEN RETURN
5640    FOR I=1 TO 20*X1
5650    X2=SQR(I)
5660    NEXT I
5670    RETURN
5680    END
5690    PRINT
5700    PRINT
5710    PRINT"YOUR TAXES ";
5720    PRINT"ARE GREATER THAN WOULD BE EXPECTED FOR YOUR INCOME."
5730    PRINT"THIS MAY CAUSE YOUR RETURN TO BE AUDITED."
5740    PRINT
5750    PRINT
5760    RETURN
5770    PRINT
5780    PRINT
5790    PRINT"YOUR MEDICAL EXPENSES ";
5800    GOTO 5720
5810    PRINT
5820    PRINT
5830    PRINT"YOUR INTERESTS ";
5840    GOTO 5720
5850    PRINT
5860    PRINT
5870    PRINT"YOUR CONTRIBUTIONS ";
5880    GOTO 5720
5890    PRINT
```

```
5900    PRINT
5910    PRINT"YOUR LOSSES MAY CAUSE YOUR RETURN TO BE AUDITED."
5920    PRINT
5930    PRINT
5940    RETURN
```

```
RUN"1040 TAX"
UCC COPYRIGHT 1978 - BY - SCIENTIFIC RESEARCH


1040 FEDERAL TAX PROGRAM INCLUDING SCHEDULE 'A' AND SUPPLEMENTAL
SCHEDULES 'B', 'C', 'D', AND 'E'.


ANSWER ALL QUESTIONS.  IF IT DOESN'T APPLY, OR YOU DON'T HAVE
INCOME OR EXEMPTIONS FOR THIS ITEM, ENTER A '0' UNLESS THE
QUESTION REQUIRES A 'YES' OR 'NO' ANSWER.


THE 1040 FORM WILL BE DONE FIRST.



ARE YOU MARRIED? Y


ARE YOU FILING A JOINT RETURN? Y

HOW MANY OTHER DEPENDENTS DO YOU CLAIM? 3

ARE YOU OR YOUR SPOUSE (IF FILING JOINT RETURN) OVER 65,
     ENTER A 0, 1, OR 2? 0

ARE YOU OR YOUR SPOUSE (IF FILING JOINT RETURN) BLIND,
     ENTER A 0, 1, OR 2? 0

WHAT IS THE GROSS WAGES ON YOUR W-2'S? 12400

WHAT IS YOUR FEDERAL WITHHOLDING? 2028

WHAT IS YOUR SPOUSE'S GROSS WAGES? 9600

WHAT HAS YOUR SPOUSE PAID INTO FEDERAL TAXES? 1640

ENTER ALL INERESTS RECEIVED  (FROM SCHEDULE 'B')? 0

ENTER ALL DIVIDENDS RECEIVED  (FROM SCHEDULE 'B')? 0

DID YOU ITEMIZE YOUR DEDUCTIONS ON YOUR FEDERAL RETURN LAST YEAR? Y
```

HOW MUCH STATE AND LOCAL TAX REFUNDS DID YOU RECEIVE FROM
LAST YEARS TAXES? 0

HOW MUCH ALIMONY DID YOU RECEIVE? 0

HOW MUCH BUSINESS INCOME OR LOSS DID YOU RECEIVE. IF LOSS,
    ENTER A NEGATIVE AMOUNT.? 0

HOW MUCH DID YOU GAIN OR LOOSE FROM SALE OR EXCHANGE OF
CAPITAL ASSETS. IF LOSS, ENTER A NEGATIVE AMOUNT? 0

DID YOU HAVE ANY FARM INCOME OR LOSS. IF LOSS ENTER
A NEGATIVE AMOUNT? 0

ENTER ANY MOVING EXPENSE YOU HAD. (INCLUDE WITH YOUR RETURN
A '3903' FORM IF ANY)? 0

ENTER PAYMENTS TOWARD A RETIREMENT PLAN. 'ATTACH FORM '5329' IF
YOU QUALIFY)? 0

ENTER ANY ALIMONY PAYMENTS YOU HAVE MADE AND ARE ENTITLED TO? 120

DID YOU RECEIVE ANY DISABILITY INCOME. (IF NONE, ENTER A '0',
OTHERWISE, ENTER THE AMOUNT)? 0

THIS COMPLETES SIDE '1' OF THE 1040 FORM. NOW WE WILL DO
THE REVERSE SIDE.

ENTER ANY ESTIMATED TAX PAYMENTS YOU MADE FOR LAST YEAR? 0

ENTER THE AMOUNT OF CREDIT FOR THE ELDERLY? 0

ENTER THE AMOUNT OF CREDIT FOR CHILD CARE. (ATTACH FORM
2441 TO RETURN)? 1500

ENTER THE AMOUNT OF INVESTMENT CREDIT? 0

THIS COMPLETES THE 1040 QUESTION AND ANSWER SECTION. SCHEDULE 'A'
WILL BE DONE NEXT.

IF YOU DON'T WANT TO ITEMIZE YOUR TAXES, TYPE A '0' OTHERWISE
TYPE A '1'? 1
MEDICAL EXPENSES WILL BE DONE FIRST.

ENTER YOUR TOTAL MEDICAL INSURANCE PREMIUMS. THE PROGRAM WILL
CALCULATE THE CORRECT AMOUNT AND ENTER IT INTO THE FORM? 270

HOW MUCH DID YOU PAY FOR PRESCRIPTIONS? 255

ENTER ALL OTHER MEDICAL EXPENSES AND MISC. CHARGES? 629

TAX EXPENSES WILL BE DONE NEXT.

ENTER THE TOTAL STATE AND LOCAL INCOME TAXES WITHHELD? 450

ENTER THE REAL ESTATE TAXES PAID? 840

LOOK UP THE GASOLINE TAX YOU ARE ENTITLED TO IN THE TAX
TABLE AND THEN ENTER THE AMOUNT HERE? 95

LOOK UP THE SALES TAX CREDIT FROM THE TAX TABLE AND ENTER
THE AMOUNT CORRESPONDING TO YOUR INCOME HERE. (NOTE: IF YOU
HAD ANY MAJOR PURCHASES SUCH AS A CAR OR ETC. YOU MAY ALSO TAKE
AS A DEDUCTION, THE SALES TAX PAID ON THOSE ITEMS)

ENTER THE TOTAL SALES TAX DEDUCTION HERE? 557

ENTER ALL PERSONAL PROPERTY TAXES PAID? 0

ENTER ANY OTHER MISC. TAXES PAID EXCEPT 'FICA' AND 'FEDERAL'
THAT HAVE NOT ALREADY BEEN ENTERED? 0

INTEREST EXPENSES WILL BE DONE NEXT.

ENTER THE INTEREST YOU PAID ON YOUR HOME MORTGAGE? 3_1267

ENTER ALL OTHER INTERESTS YOU PAID SUCH AS ON LOANS, CREDIT CARDS,
AND ETC.? 308

CONTRIBUTIONS WILL BE DONE NEXT.

ENTER ANY CASH CONTRIBUTIONS YOU MADE? 2650

ENTER CASH VALUE OF OTHER CONTRIBUTIONS MADE SUCH AS CLOTHES,
OLD FURNITURE, AND ETC.? 57

YOUR CONTRIBUTIONS ARE GREATER THAN WOULD BE EXPECTED FOR YOUR INCOME.
THIS MAY CAUSE YOUR RETURN TO BE AUDITED.

LOSSES WILL BE DONE NEXT.

ENTER ALL CASUALTY LOSSES? 180

ENTER ALL INSURANCE REIMBURSEMENTS FOR THESE LOSS   (IF ANY)? 0
ENTER $100 FOR EACH LOSS? 100

MISCELLANEOUS DEDUCTIONS WILL BE DONE NEXT.

ENTER ALL UNION DUES PAID? 72

ENTER ALL OTHER MISC. DEDUCTIONS SUCH AS COST OF BOOKS, UNIFORMS,
TOOLS, ETC.? 305

THE TOTAL NUMBER OF EXEMPTIONS YOU CLAIMED IS 5
YOUR TAXABLE INCOME IS $ 17132 .   LOOK UP THIS AMOUNT IN THE TAX RATE
TABLES A, B, C, OR D AND ENTER YOUR TAX HERE? 1679

REFUND . . . REFUND . . OF . . . $ 3489 . . . .

THIS FINISHES THE QUESTIONING SECTION OF THE 1040 TAX PROGRAM.
NOW THE PROGRAM WILL PRINT OUT THE TOTALS TO BE USED IN
FILLING OUT YOUR TAX FORMS. THE '1040' FORM WILL BE
FIRST.
DO YOU HAVE HARD COPY (Y OR N)? Y

THE FOLLOWING ARE THE LINE NUMBERS AND AMOUNTS TO BE ENTERED
ON YOUR 1040 FORM.

UCC - COPYRIGHT 1978 BY - SCIENTIFIC RESEARCH

LINE NUMBER	AMOUNT	AMOUNT
7		5
8		22000
9		0
10C		0
11		0
12		0
13		0
14		0
19		0
21		22000
22	0	
24	0	
27	1200	
28		1200
29		20800
30		0
31		20800

THIS IS THE END OF THE FRONT SIDE OF THE 1040 FORM. NOW THE
BACK SIDE WILL BE FILLED IN.

Line		
32		20800
33		3668
34		17132
35		1679
37		1679
39	0	
40	1500	
41	0	
46		1500
47		179
54		179
55	3668	
56	0	
57	0	
62		3668
63		3489
64		3489
66		0

THIS END THE PRINT OUT OF THE '1040' TAX TOTALS. THE
FOLLOWING LINE NUMBERS WILL REFLECT THE FIGURES
WHICH ARE USED ON SCHEDULE 'A'.

LINE NUMBER	AMOUNT
1	135
2	255
3	208
4	47
6C	629
7	676
8	624
9	52
10	187
11	450
12	840
13	95
14	557
15	0
16	0
17	1942
18	1267
19	308
20	1575
21	2650
22	57
24	2707
25	180
26	0

27	180
28	100
29	80
30	72
31	305
32	377
33	187
34	1942
35	1575
36	2707
37	80
38	377
39	6868
40	3200
41	3668

THIS FINISHES THE '1040' TAX PROGRAM. NOW YOU
MUST FILL IN THE BLANKS ON THE APPROPRIATE FORMS AND THEN SIGN
THEM IN THE CORRECT PLACES. BE SURE TO INCLUDE ANY AND ALL
SUPPORTING FORMS, IF ANY, AND A CHECK IF YOU
OWE THE GOVERNMENT ANY TAXES.

     THANK YOU FOR ALLOWING ME TO HELP YOU WITH YOUR TAXES
THIS YEAR.

OK

Form **1040** Department of the Treasury—Internal Revenue Service
U.S. Individual Income Tax Return 1977

For the year January 1–December 31, 1977, or other taxable year beginning , 1977 ending , 19 .

Use IRS label. Otherwise, print or type.

First name and initial (if joint return, give first names and initials of both) | Last name
James L., Karen J. Johnson

Your social security number 327 57 622l

Present home address (Number and street, including apartment number, or rural route)
1426 Westview Ave

Spouse's social security no. 118 61 0341

City, town or post office, State and ZIP code
Hollywood, CA, 91407

For Privacy Act Notice, see page 3 of Instructions.

Occupation Yours ▶ Engineer   Spouse's ▶ Teacher

Presidential Election Campaign Fund ▶
Do you want $1 to go to this fund? . . . . | ☐ Yes | ▨ | ☐ No
If joint return, does your spouse want $1 to go to this fund? . | ☐ Yes | ▨ | ☐ No

Note: Checking "Yes" will not increase your tax or reduce your refund.

Filing Status
Check Only One Box

1 ☐ Single
2 ☒ Married filing joint return (even if only one had income)
3 ☐ Married filing separately. If spouse is also filing, give spouse's social security number in the space above and enter full name here ▶
4 ☐ Unmarried Head of Household. Enter qualifying name ▶ . . . . . See page 7 of Instructions.
5 ☐ Qualifying widow(er) with dependent child (Year spouse died ▶ 19). See page 7 of Instructions.

Exemptions

Always check the "Yourself" box. Check other boxes if they apply.

6a ☒ Yourself   ☐ 65 or over   ☐ Blind
b ☒ Spouse   ☐ 65 or over   ☐ Blind

Enter number of boxes checked on 6a and b ▶ 2

c First names of your dependent children who lived with you ▶ Frank, Jean, Kay

Enter number of children listed ▶ 3

d Other dependents: (1) Name	(2) Relationship	(3) Number of months lived in your home.	(4) Did dependent have income of $750 or more?	(5) Did you provide more than one half of dependent's support?

Enter number of other dependents ▶ ☐

7 Total number of exemptions claimed . . . .
Add numbers entered in boxes above ▶ 5

Income

Please Attach Copy B of Forms W-2 Here

8	Wages, salaries, tips, and other employee compensation. (Attach Forms W-2. If unavailable, see page 5 of Instructions.)	8	22000 —
9	Interest income. (If over $400, attach Schedule B.)	9	0
10a	Dividends (If over $400, attach Schedule B) . . . . . , 10b less exclusion . . . . , Balance ▶	10c	0

(See pages 9 and 17 of Instructions)

(If you have no other income, skip lines 11 through 20 and go to line 21.)

11	State and local income tax refunds (does not apply if refund is for year you took standard deduction) . . .	11	0
12	Alimony received	12	0
13	Business income or (loss) (attach Schedule C)	13	0
14	Capital gain or (loss) (attach Schedule D)	14	0
15	50% of capital gain distributions not reported on Schedule D	15	
16	Net gain or (loss) from Supplemental Schedule of Gains and Losses (attach Form 4797) . .	16	
17	Fully taxable pensions and annuities not reported on Schedule E	17	
18	Pensions, annuities, rents, royalties, partnerships, estates or trusts, etc. (attach Schedule E) .	18	
19	Farm income or (loss) (attach Schedule F)	19	0
20	Other (state nature and source—see page 9 of Instructions) ▶	20	
21	Total income. Add lines 8, 9, and 10c through 20 . . . . ▶	21	22000 —

Adjustments to Income *(If none, skip lines 22 through 27 and enter zero on line 28.)*

22	Moving expense (attach Form 3903)	22	0	
23	Employee business expenses (attach Form 2106)	23		
24	Payments to an Individual retirement arrangement (from attached Form 5329, Part III)	24	0	
25	Payments to a Keogh (H.R. 10) retirement plan	25		
26	Forfeited interest penalty for premature withdrawal	26		
27	Alimony paid (see page 11 of Instructions)	27	1200	
28	Total adjustments. Add lines 22 through 27 . . . . ▶	28	1200 —
29	Subtract line 28 from line 21	29	20800 —
30	Disability income exclusion (sick pay) (attach Form 2440)	30	0
31	Adjusted gross income. Subtract line 30 from line 29. Enter here and on line 32. If you want IRS to figure your tax for you, see page 4 of the Instructions . . . . ▶	31	20800 —

1224

32	Amount from line 31	**32**	20800
33	If you itemize deductions, enter excess itemized deductions from Schedule A, line 41		
	If you do NOT itemize deductions, enter zero.	**33**	3668
	Caution: If you have unearned income and can be claimed as a dependent on your parent's return, check here ▶ [ ] and see page 11 of the Instructions. Also see page 11 of the Instructions if:		
	● You are married filing a separate return and your spouse itemizes deductions, OR		
	● You file Form 4563, OR		
	● You are a dual-status alien.		
34	Tax Table Income. Subtract line 33 from line 32	**34**	17132
	Note: See Instructions for line 35 on page 11. Then find your tax on the amount on line 34 in the Tax Tables. Enter the tax on line 35. However, if line 34 is more than $20,000 ($40,000 if you checked box 2 or 5) or you have more exemptions than those covered in the Tax Tables for your filing status, use Part I of Schedule TC (Form 1040) to figure your tax. You must also use Schedule TC if you file Schedule G (Form 1040), Income Averaging.		
35	Tax. Check if from ☒ Tax Tables or [ ] Schedule TC	**35**	1679
36	Additional taxes. (See page 12 of Instructions.) Check if from [ ] Form 4970, [ ] Form 4972, [ ] Form 5544, [ ] Form 5405, or [ ] Section 72(m)(5) penalty tax	**36**	
37	Total. Add lines 35 and 36 . . . . ▶	**37**	1679

38	Credit for contributions to candidates for public office	**38**			
39	Credit for the elderly (attach Schedules R&RP)	**39**	0		
40	Credit for child and dependent care expenses (attach Form 2441) .	**40**	1500	—	
41	Investment credit (attach Form 3468)	**41**	0		
42	Foreign tax credit (attach Form 1116)	**42**			
43	Work Incentive (WIN) Credit (attach Form 4874)	**43**			
44	New jobs credit (attach Form 5884)	**44**			
45	See page 12 of Instructions	**45**			
46	Total credits. Add lines 38 through 45			**46**	1500
47	Balance. Subtract line 46 from line 37 and enter difference (but not less than zero) . . . . ▶			**47**	179

48	Self-employment tax (attach Schedule SE)	**48**	
49	Minimum tax. Check here ▶ [ ] and attach Form 4625	**49**	
50	Tax from recomputing prior-year investment credit (attach Form 4255)	**50**	
51	Social security tax on tip income not reported to employer (attach Form 4137)	**51**	
52	Uncollected employee social security tax on tips (from Form W–2)	**52**	
53	Tax on an individual retirement arrangement (attach Form 5329)	**53**	
54	Total tax. Add lines 47 through 53 . . . . ▶	**54**	179

55	Total Federal income tax withheld (attach Forms W–2, W–2G, and W–2P to front)	**55**	3668	—
56	1977 estimated tax payments (include amount allowed as credit from 1976 return)	**56**	0	
57	Earned income credit. If line 31 is under $8,000, see page 2 of Instructions. If eligible, enter child's name ▶	**57**	0	
58	Amount paid with Form 4868	**58**		
59	Excess FICA and RRTA tax withheld (two or more employers) . . .	**59**		
60	Credit for Federal tax on special fuels, etc. (attach Form 4136) . .	**60**		
61	Credit from a Regulated Investment Company (attach Form 2439)	**61**		
61a	See page 13 of Instructions	**61a**		
62	Total. Add lines 55 through 61a . . . . ▶	**62**	3668	—

63	If line 62 is larger than line 54, enter amount OVERPAID . . . . ▶	**63**	3489
64	Amount of line 63 to be REFUNDED TO YOU . . . . ▶	**64**	3489
65	Amount of line 63 to be credited on 1978 estimated tax . . . . ▶	**65**	
66	If line 54 is larger than line 62, enter BALANCE DUE. Attach check or money order for full amount payable to "Internal Revenue Service." Write social security number on check or money order . . . ▶ (Check ▶ [ ] if Form 2210 (2210F) is attached. See page 14 of Instructions.)	**66**	0

Under penalties of perjury, I declare that I have examined this return, including accompanying schedules and statements, and to the best of my knowledge and belief, it is true, correct, and complete. Declaration of preparer (other than taxpayer) is based on all information of which preparer has any knowledge.

▶ X _James S. Johnson_ 4/15/78 ▶
Your signature / Date

Paid preparer's signature and identifying number (see instructions)

▶ X _Karen J. Johnson_
Spouse's signature (if filing jointly, BOTH must sign even if only one had income)

Paid preparer's address (or employer's name, address, and identifying number)

Schedules A&B—Itemized Deductions AND Interest and Dividend Income

(Form 1040)
Department of the Treasury
Internal Revenue Service

▷ Attach to Form 1040. ▷ See Instructions for Schedules A and B (Form 1040).

1977

Name(s) as shown on Form 1040

James L. , Karen J. Johnson

Your social security number

327 57 6221

Schedule A Itemized Deductions (Schedule B is on back)

Medical and Dental Expenses (not compensated by insurance or otherwise) (See page 14 of Instructions.)

1 One-half (but not more than $150) of insurance premiums for medical care. (Be sure to include in line 10 below) . . .	135	—
2 Medicine and drugs	255	—
3 Enter 1% of line 31, Form 1040 . . .	208	—
4 Subtract line 3 from line 2. Enter difference (if less than zero, enter zero) . .	47	—
5 Enter balance of insurance premiums for medical care not entered on line 1 . .		
6 Enter other medical and dental expenses:		
a Doctors, dentists, nurses, etc. . . .		
b Hospitals		
c Other (itemize—include hearing aids, dentures, eyeglasses, transportation, etc.) ▷	629	—
7 Total (add lines 4 through 6c) . . .	676	—
8 Enter 3% of line 31, Form 1040 . . .	624	—
9 Subtract line 8 from line 7 (if less than zero, enter zero)	52	—
10 Total (add lines 1 and 9). Enter here and on line 33 . . . . ▷	187	—

Taxes (See page 14 of Instructions.)

11 State and local income	450	—
12 Real estate	840	—
13 State and local gasoline (see gas tax tables)	95	—
14 General sales (see sales tax tables) . .	557	—
15 Personal property	0	
16 Other (itemize) ▷	0	—
17 Total (add lines 11 through 16). Enter here and on line 34 . . . . . . ▷	1942	—

Interest Expense (See page 16 of Instructions.)

18 Home mortgage	1267	—
19 Other (itemize) ▷	308	—
20 Total (add lines 18 and 19). Enter here and on line 35 . . . . ▷	1575	—

Contributions (See page 16 of Instructions for examples.)

21 a Cash contributions for which you have receipts, cancelled checks or other written evidence	2650	—
b Other cash contributions. List donees and amounts. ▷		
22 Other than cash (see page 16 of Instructions for required statement) . . .	57	—
23 Carryover from prior years		
24 Total contributions (add lines 21a through 23). Enter here and on line 36 . . ▷	2707	—

Casualty or Theft Loss(es) (See page 16 of Instructions.)

25 Loss before insurance reimbursement .	180	—
26 Insurance reimbursement	0	
27 Subtract line 26 from line 25. Enter difference (if less than zero, enter zero) .	180	—
28 Enter $100 or amount on line 27, whichever is smaller	100	—
29 Casualty or theft loss (subtract line 28 from line 27). Enter here and on line 37 . ▷	80	—

Miscellaneous Deductions (See page 16 of Instructions.)

30 Union dues	72	—
31 Other (itemize) ▷	305	—
32 Total (add lines 30 and 31). Enter here and on line 38 . . . . ▷	377	—

Summary of Itemized Deductions (See page 17 of Instructions.) A

33 Total medical and dental—line 10 . .	187	—
34 Total taxes—line 17	1942	—
35 Total interest—line 20	1575	—
36 Total contributions—line 24	2707	—
37 Casualty or theft loss(es)—line 29 . .	80	—
38 Total miscellaneous—line 32	377	—
39 Total deductions (add lines 33 through 38). ▷	6868	—
40 If you checked Form 1040, box: 2 or 5, enter $3,200 1 or 4, enter $2,200 3, enter $1,600	3200	—
41 Excess itemized deductions (subtract line 40 from line 39). Enter here and on Form 1040, line 33. (If line 40 is more than line 39 see "Who MUST Itemize Deductions" on page 11 of the Instructions.) . . ▷	3668	—

1226

1040 FEDERAL TAX PROGRAM INCLUDING SCHEDULE 'A' AND SUPPLEMENTAL
SCHEDULES 'B', 'C', 'D', AND 'F'.

ANSWER ALL QUESTIONS. IF IT DOESN'T APPLY, OR YOU DON'T HAVE
INCOME OR EXEMPTIONS FOR THIS ITEM, ENTER A '0' UNLESS THE
QUESTION REQUIRES A 'YES' OR 'NO' ANSWER.

THE 1040 FORM WILL BE DONE FIRST.

ARE YOU MARRIED? N

HOW MANY OTHER DEPENDENTS DO YOU CLAIM? 0

ARE YOU OR YOUR SPOUSE (IF FILING JOINT RETURN) OVER 65,
     ENTER A 0, 1, OR 2? 0

ARE YOU OR YOUR SPOUSE (IF FILING JOINT RETURN) BLIND,
     ENTER A 0, 1, OR 2? 0

WHAT IS THE GROSS WAGES ON YOUR W-2'S? 21045

WHAT IS YOUR FEDERAL WITHOLDING? 3874

ENTER ALL INERESTS RECEIVED (FROM SCHEDULE 'B')? 0

ENTER ALL DIVIDENDS RECEIVED (FROM SCHEDULE 'B')? 150

DID YOU ITEMIZE YOUR DEDUCTIONS ON YOUR FEDERAL RETURN LAST YEAR? N

HOW MUCH ALIMONY DID YOU RECEIVE? 0

HOW MUCH BUSINESS INCOME OR LOSS DID YOU RECEIVE. IF LOSS,
     ENTER A NEGATIVE AMOUNT.? 0

HOW MUCH DID YOU GAIN OR LOOSE FROM SALE OR EXCHANGE OF
CAPITAL ASSETS. IF LOSS, ENTER A NEGATIVE AMOUNT? 0

DID YOU HAVE ANY FARM INCOME OR LOSS. IF LOSS ENTER
A NEGATIVE AMOUNT? 0

ENTER ANY MOVING EXPENSE YOU HAD. (INCLUDE WITH YOUR RETURN
A '3903' FORM IF ANY)? 0

ENTER PAYMENTS TOWARD A RETIREMENT PLAN. (ATTACH FORM '5329' IF
YOU QUALIFY)? 0

ENTER ANY ALIMONY PAYMENTS YOU HAVE MADE AND ARE ENTITLED TO? 0

DID YOU RECEIVE ANY DISABILITY INCOME.   (IF NONE, ENTER A '0',
OTHERWISE, ENTER THE AMOUNT)? 0

THIS COMPLETES SIDE '1' OF THE 1040 FORM.   NOW WE WILL DO
THE REVERSE SIDE.

ENTER ANY ESTIMATED TAX PAYMENTS YOU MADE FOR LAST YEAR? 0

ENTER THE AMOUNT OF CREDIT FOR THE ELDERLY? 0

ENTER THE AMOUNT OF CREDIT FOR CHILD CARE.   (ATTACH FORM
2441 TO RETURN)? 0

ENTER THE AMOUNT OF INVESTMENT CREDIT? 0

THIS COMPLETES THE 1040 QUESTION AND ANSWER SECTION.   SCHEDULE 'A'
WILL BE DONE NEXT.

IF YOU DON'T WANT TO ITEMIZE YOUR TAXES, TYPE A '0' OTHERWISE
TYPE A '1'? 0

THE TOTAL NUMBER OF EXEMPTIONS YOU CLAIMED IS 1
YOUR TAXABLE INCOME IS $ 21195 .   LOOK UP THIS AMOUNT IN THE TAX RATE
TABLES X, Y, OR Z AND ENTER YOUR TAX HERE? 4033

THIS FINISHES THE QUESTIONING SECTION OF THE 1040 TAX PROGRAM.
NOW THE PROGRAM WILL PRINT OUT THE TOTALS TO BE USED IN
FILLING OUT YOUR TAX FORMS.   THE '1040' FORM WILL BE
FIRST.
DO YOU HAVE HARD COPY   (Y OR N)? N

HOW MANY SECONDS DELAY WOULD YOU LIKE
BETWEEN PRINTED LINES   (0 = NO DELAY)? 12

THE FOLLOWING ARE THE LINE NUMBERS AND AMOUNTS TO BE ENTERED
ON YOUR 1040 FORM.

UCC - COPYRIGHT 1978 BY - SCIENTIFIC RESEARCH

LINE NUMBER	AMOUNT	AMOUNT
7		1
8		21045
9		0
10C		150
11		0
12		0
13		0
14		0
19		**0**
21		21195
22	0	
24	0	
27	0	
28		0
29		21195
30		0
31		21195

THIS IS THE END OF THE FRONT SIDE OF THE 1040 FORM.   NOW THE
BACK SIDE WILL BE FILLED IN.

32		21195
33		0
34		21195
35		4033
37		4033
39	0	
40	0	
41	0	
46		0
47		4033
54		4033
55	3874	
56	0	
57	0	
62		3874
63		0
64		0
66		159

THIS FINISHES THE '1040' TAX PROGRAM. NOW YOU
MUST FILL IN THE BLANKS ON THE APPROPRIATE FORMS AND THEN SIGN
THEM IN THE CORRECT PLACES. BE SURE TO INCLUDE ANY AND ALL
SUPPORTING FORMS, IF ANY, AND A CHECK IF YOU
OWE THE GOVERNMENT ANY TAXES.

THANK YOU FOR ALLOWING ME TO HELP YOU WITH YOUR TAXES
THIS YEAR.

For the year January 1–December 31, 1977, or other taxable year beginning , 1977 ending , 19

Use IRS label. Otherwise, print or type.

First name and initial (if joint return, give first names and initials of both) — Jane S.
Last name — Harmon

Present home address (Number and street, including apartment number, or rural route) — 467 S. Bay Drive

City, town or post office, State and ZIP code — New York, N.J. 01907

Your social security number — 621 37 6218

Spouse's social security no.

For Privacy Act Notice, see page 3 of Instructions.

Occupation — Yours ▷ Secretary — Spouse's ▷

Presidential Election Campaign Fund

Do you want $1 to go to this fund? .... Yes ☐ No ☐

If joint return, does your spouse want $1 to go to this fund? . Yes ☐ No ☐

Note: Checking "Yes" will not increase your tax or reduce your refund.

Filing Status

Check Only One Box

1. ☒ Single
2. ☐ Married filing joint return (even if only one had income)
3. ☐ Married filing separately. If spouse is also filing, give spouse's social security number in the space above and enter full name here ▷
4. ☐ Unmarried Head of Household. Enter qualifying name ▷ ...... See page 7 of Instructions.
5. ☐ Qualifying widow(er) with dependent child (Year spouse died ▷ 19). See page 7 of Instructions.

Exemptions

Always check the "Yourself" box. Check other boxes if they apply.

6a ☒ Yourself ☐ 65 or over ☐ Blind

Enter number of boxes checked on 6a and b ▷ 1

b ☐ Spouse ☐ 65 or over ☐ Blind

c First names of your dependent children who lived with you ▷

Enter number of children listed ▷

d Other dependents: (1) Name	(2) Relationship	(3) Number of months lived in your home.	(4) Did dependent have income of $750 or more?	(5) Did you provide more than one half of dependent's support?

Enter number of other dependents ▷

7 Total number of exemptions claimed ....

Add numbers entered in boxes above ▷ 1

Income

Please Attach Copy B of Forms W-2 Here

8	Wages, salaries, tips, and other employee compensation. (Attach Forms W-2. If unavailable, see page 5 of Instructions.)	8	21045 —
9	Interest income. (If over $400, attach Schedule B.)	9	0
10a	Dividends (If over $400, attach Schedule B) , 10b less exclusion , Balance ▷	10c	150 —
	(See pages 9 and 17 of Instructions)		

(If you have no other income, skip lines 11 through 20 and go to line 21.)

11	State and local income tax refunds (does not apply if refund is for year you took standard deduction) ...	11	0
12	Alimony received.	12	0
13	Business income or (loss) (attach Schedule C)	13	0
14	Capital gain or (loss) (attach Schedule D)	14	0
15	50% of capital gain distributions not reported on Schedule D	15	
16	Net gain or (loss) from Supplemental Schedule of Gains and Losses (attach Form 4797) ..	16	
17	Fully taxable pensions and annuities not reported on Schedule E.........	17	
18	Pensions, annuities, rents, royalties, partnerships, estates or trusts, etc. (attach Schedule E) .	18	
19	Farm income or (loss) (attach Schedule F)	19	0
20	Other (state nature and source—see page 9 of Instructions) ▷	20	
21	Total income. Add lines 8, 9, and 10c through 20 .... ▷	21	21195 —

Adjustments to Income *(If none, skip lines 22 through 27 and enter zero on line 28.)*

Please Attach Check or Money Order Here

22	Moving expense (attach Form 3903)	22	0	
23	Employee business expenses (attach Form 2106)	23		
24	Payments to an individual retirement arrangement (from attached Form 5329, Part III)	24	0	
25	Payments to a Keogh (H.R. 10) retirement plan	25		
26	Forfeited interest penalty for premature withdrawal	26		
27	Alimony paid (see page 11 of Instructions)	27	0	
28	Total adjustments. Add lines 22 through 27 .... ▷	28	0	
29	Subtract line 28 from line 21	29	21195 —	
30	Disability income exclusion (sick pay) (attach Form 2440)	30	0	
31	Adjusted gross income. Subtract line 30 from line 29. Enter here and on line 32. If you want IRS to figure your tax for you, see page 4 of the Instructions ...... ▷	31	21195 —	

32 Amount from line 31	**32**	21195	—
33 If you itemize deductions, enter excess itemized deductions from Schedule A, line 41			
If you do NOT itemize deductions, enter zero	**33**	0	

Tax Computation

33 Caution: *If you have unearned income and can be claimed as a dependent on your parent's return, check here* ▶ ☐ *and see page 11 of the Instructions. Also see page 11 of the Instructions if:*
- You are married filing a separate return and your spouse itemizes deductions, OR
- You file Form 4563, OR
- You are a dual-status alien.

34 Tax Table Income. Subtract line 33 from line 32	**34**	21195	—

Note: See Instructions for line 35 on page 11. Then find your tax on the amount on line 34 in the Tax Tables. Enter the tax on line 35. However, if line 34 is more than $20,000 ($40,000 if you checked box 2 or 5) or you have more exemptions than those covered in the Tax Tables for your filing status, use Part I of Schedule TC (Form 1040) to figure your tax. You must also use Schedule TC if you file Schedule G (Form 1040), Income Averaging.

35 Tax. Check if from ☒ Tax Tables or ☐ Schedule TC	**35**	4033	—
36 Additional taxes. (See page 12 of Instructions.) Check if from ☐ Form 4970, ☐ Form 4972, ☐ Form 5544, ☐ Form 5405, or ☐ Section 72(m)(5) penalty tax	**36**		
37 **Total.** Add lines 35 and 36 . . . . ▶	**37**	4033	—

Credits

38 Credit for contributions to candidates for public office	**38**				
39 Credit for the elderly (attach Schedules R&RP)	**39**	0			
40 Credit for child and dependent care expenses (attach Form 2441) .	**40**	0			
41 Investment credit (attach Form 3468)	**41**	0			
42 Foreign tax credit (attach Form 1116)	**42**				
43 Work Incentive (WIN) Credit (attach Form 4874)	**43**				
44 New jobs credit (attach Form 5884)	**44**				
45 See page 12 of Instructions	**45**				
46 Total credits. Add lines 38 through 45		**46**	0		
47 **Balance.** Subtract line 46 from line 37 and enter difference (but not less than zero) . . . . ▶		**47**	4033	—	

Other Taxes

48 Self-employment tax (attach Schedule SE)	**48**		
49 Minimum tax. Check here ▶ ☐ and attach Form 4625	**49**		
50 Tax from recomputing prior-year investment credit (attach Form 4255)	**50**		
51 Social security tax on tip income not reported to employer (attach Form 4137)	**51**		
52 Uncollected employee social security tax on tips (from Form W–2)	**52**		
53 Tax on an individual retirement arrangement (attach Form 5329)	**53**		
54 **Total tax.** Add lines 47 through 53 . . . . ▶	**54**	4033	—

Payments

55 Total Federal income tax withheld (attach Forms W–2, W–2G, and W–2P to front)	**55**	3874	—		
56 1977 estimated tax payments (include amount allowed as credit from 1976 return)	**56**	0			
57 Earned income credit. If line 31 is under $8,000, see page 2 of Instructions. If eligible, enter child's name ▶	**57**	0			
58 Amount paid with Form 4868	**58**				
59 Excess FICA and RRTA tax withheld (two or more employers) . . .	**59**				
60 Credit for Federal tax on special fuels, etc. (attach Form 4136) . .	**60**				
61 Credit from a Regulated Investment Company (attach Form 2439)	**61**				
61a See page 13 of Instructions	**61a**				
62 **Total.** Add lines 55 through 61a . . . . ▶		**62**	3874	—	

Refund or Due

63 If line 62 is larger than line 54, enter amount **OVERPAID** . . . . ▶	**63**	0	
64 Amount of line 63 to be **REFUNDED TO YOU** . . . . ▶	**64**	0	
65 Amount of line 63 to be credited on 1978 estimated tax . . . . ▶	65		
66 If line 54 is larger than line 62, enter **BALANCE DUE.** Attach check or money order for full amount payable to "Internal Revenue Service." Write social security number on check or money order . . . ▶ (Check ▶ ☐ if Form 2210 (2210F) is attached. See page 14 of Instructions.)	**66**	159	—

Please Sign Here

Under penalties of perjury, I declare that I have examined this return, including accompanying schedules and statements, and to the best of my knowledge and belief, it is true, correct, and complete. Declaration of preparer (other than taxpayer) is based on all information of which preparer has any knowledge.

X _Jane A. Harmon_　　　　　　　　　　　　　Date ____
Your signature

Paid preparer's signature and identifying number (see instructions)
_____

Spouse's signature (if filing jointly, BOTH must sign even if only one had income)

Paid preparer's address (or employer's name, address, and identifying number)

1232

BALANCE:

DESCRIPTION

Balance is a computer program for reconciling your bank statements. The program uses the checks and deposit slips returned with your monthly bank statements as well as those items that are outstanding to provide you with a balanced accounting.

USERS

Individuals who want to keep a detailed set of banking records to augment the statements they receive from their bank. Balance will generate supplemental listings whenever you like, NOT just at the end of the month.

INSTRUCTIONS

Balance is tutorial and will give you detailed instructions if listed out. Initially your data must be entered into the program using data statements before running it for the first time. REMEMBER you must delete the sample data already in the program! After each run is completed and the amounts are correct, enter the latest checks and deposits in data statements into the program and save this updated version for the next time you use the program. Study the example carefully and refer to the sample data in the program used to generate the sample run.

LIMITATIONS

Some of the variables used are double alpha characters. In some systems these may have to be changed to an alpha and numeric pair ie: II may have to be changed to I9 - for some systems. With the DIM statements in lines 780 and 790 set for 100 the program will require 16K of memory to execute. The source code is 8K long but may be reduced by omitting the instructions when typing the program into your computer.

```
100   REM
110   REM
120   REM   DESCRIPTION
130   REM     "BALANCE" IS A BASIC PROGRAM THAT RECONCILES A BANK
140   REM   STATEMENT BALANCE WITH THOSE CHECKS AND DEPOSITS THAT ARE OUT-
150   REM   STANDING.   STARTING WITH THE ENDING BALANCE, THE PROGRAM
160   REM   SUBTRACTS OUTSTANDING CHECKS AND ADDS OUTSTANDING DEPOSITS TO
170   REM   ARRIVE AT THE BOOK BALANCE AT THE END OF THE PERIOD.   THE ADJU
      STED
180   REM   BOOK BALANCE IS THE BOOK BALANCE MINUS SERVICE CHARGES.
190   REM
200   REM   INSTRUCTIONS
210   REM        THE PROGRAM WILL ASK YOU TO INPUT SOME INFORMATION.   FIRS
      T,
220   REM   IT WILL ASK YOU TO "PLEASE ENTER THE NUMBER AND AMOUNT OF
230   REM   EACH CHECK WRITTEN AND ANY OUTSTANDING AT THE BEGINNING
240   REM   OF THE PERIOD."   AFTER THE QUESTION MARK, YOU TYPE THE CHECK
250   REM   NUMBER FOLLOWED BY A COMMA, AND THE CHECK AMOUNT.   WHEN YOU HA
      VE
260   REM   NO MORE INFORMATION TO ENTER, RESPOND TO THE QUESTION MARK
270   REM   WITH A "0,0."
280   REM        NEXT, THE PROGRAM WILL ASK YOU TO "PLEASE ENTER THE NUMBE
      R
290   REM   AND AMOUNT OF EACH DEPOSIT AND ANY OUTSTANDING AT
300   REM   THE BEGINNING OF THE PERIOD."   AFTER THE QUESTION MARK, YOU TY
      PE
310   REM   THE DEPOSIT NUMBER, FOLLOWED BY A COMMA, AND THE DEPOSIT
320   REM   AMOUNT.   WHEN YOU HAVE NO MORE INFORMATION TO ENTER, RESPOND
330   REM   TO THE QUESTION MARK WITH A "0,0."
340   REM
350   REM
360   REM        YOU ENTER DATA INTO THE PROGRAM AS FOLLOWS:
370   REM   (1) TYPE THE NUMBER OF THE LINE INTO WHICH YOU WANT TO PUT DA
      TA.
380   REM   (2) TYPE THE WORD "DATA."
390   REM   (3) TYPE THE DATA REMEMBERING TO SEPARATE EACH PIECE OF INFOR
400   REM       MATION BY A COMMA.
410   REM   THE DATA THAT YOU ENTER INTO THE PROGRAM IS:
420   REM
430   REM      LINE NO.                    TYPE OF INFORMATION
440   REM      --------                    -------------------
450   REM      5000      DATA    ENDING BALANCE, SERVICE CHARGES
460   REM      5100      DATA    CHECK NUMBER, CHECK AMOUNT
470   REM      ....      DATA    ENTER 0,0 INTO A LINE WHEN YOU HAV
      E
480   REM                       NO MORE DATA
490   REM      ....      DATA    DEPOSIT NUMBER, DEPOSIT AMOUNT
500   REM      ....      DATA    0,0 TO SIGNAL NO MORE DEPOSITS
510   REM
520   REM
530   REM
540   REM      IDENTIFICATION OF VARIABLES USED IN THE PROGRAM
550   REM      -------------------------------------------------
560   REM   Z=ENDING BALANCE ON STATEMENT, S=SERVICE CHARGE
570   REM   B=NUMBER OF DEPOSITS ON STATEMENT
```

UCC COPYRIGHT 1978
BY SCIENTIFIC RESEARCH

```
580   REM   X(1) TO X(100)=CHECK NUMBERS ON STATEMENT
590   REM   Z(1) TO Z(100)=CHECK AMOUNTS ON STATEMENT
600   REM   Y(1) TO Y(100)=DEPOSIT NUMBERS ON STATEMENT
610   REM   R(1) TO R(100)=DEPOSIT AMOUNTS ON STATEMENT
620   REM   C( )=CHECK NUMBERS USED BY CUSTOMER
630   REM   A( )=CHECK AMOUNTS WRITTEN BY CUSTOMER
640   REM   O( ) AND L( )=OUTSTANDING CHECK NUMBERS AND AMOUNTS
650   REM   D( )=DEPOSIT NUMBERS USED BY CUSTOMER
660   REM   F( )=DEPOSITS MADE BY CUSTOMER
670   REM   E( ) AND G( )=OUTSTANDING DEPOSIT NUMBERS AND AMOUNTS
680   REM
690   REM   * * * * * * * * * * * * * * * * * * * * * * * * * * * *
700   REM
710   V$="$######.##"
720   DEFDBL L
730   DEFDBL G
740   DEFDBL O-Z
750   DIM L(100),Q(100)
760   L8=0:N=0:L9=0:R=0
770   REM READ IN STATEMENT INFORMATION
780   DIM X(100),Y(100),C(100),D(100),E(100),A(100),Z(100)
790   DIM R(100),F(100),G(100)
800   REM   Z IS ENDING BALANCE
810   REM   S IS SERVICE CHARGES
820   READ Z,S
830   REM   LOOP TO READ CHECK NOS. AND AMOUNT
840   REM   X( ) IS CHECK NOS. ON THE STATEMENT
850   REM   Z( ) IS CHECK AMOUNTS ON THE STATEMENT
860   FOR I=1 TO 100
870   READ X(I),Z(I)
880   REM   WHEN X( )=0, NO MORE CHECKS
890   IF X(I)=0 THEN 940
900   REM   A=TOTAL NO. OF CHECKS ON THE STATEMENT
910   LET A=A+1
920   NEXT I
930   REM   LOOP TO READ DEPOSIT NOS. AND AMOUNT
940   FOR I=1 TO 100
950   REM   Y( ) IS DEPOSIT NOS. ON THE STATEMENT
960   REM   R( ) IS DEPOSIT AMOUNTS ON THE STATEMENT
970   READ Y(I),R(I)
980   REM   WHEN Y( )=0, NO MORE DEPOSITS
990   IF Y(I)=0 THEN 1030
1000  REM   B=TOTAL NO. OF DEPOSITS ON THE STATEMENT
1010  LET B=B+1
1020  NEXT I
1030  PRINT TAB(12);"RECONCILEMENT OF BANK ACCOUNT"
1040  PRINT
1050  REM   INPUT LOOP FOR CHECKS WRITTEN AND OUTSTANDING
1060  PRINT"PLEASE ENTER THE NUMBER AND AMOUNT OF EACH CHECK WRITTEN AND"
1070  PRINT"ANY CHECKS OUTSTANDING AT THE BEGINNING OF THE PERIOD"
1080  PRINT"(ENTER 0,0 WHEN COMPLETED)"
1090  PRINT "ENTER NUMBER, AMOUNT"
1100  FOR I=1 TO 100
1110  REM   C( ) IS CHECK NOS. USED BY CUSTOMER
1120  REM   A( ) IS CHECK AMOUNTS WRITTEN BY CUSTOMER
```

```
1130    INPUT C(I),A(I)
1140    IF C(I)=0 THEN 1190
1150    REM  L8=TOTAL NO. OF CHECKS USED BY CUSTOMER
1160    LET L8=L8+1
1170    NEXT I
1180    N=0
1190    REM   N=TOTAL NO. OF CHECKS OUTSTANDING
1200    REM   Q( )=OUTSTANDING CHECK NO.
1210    REM   L( )=OUTSTANDING CHECK AMOUNTS
1220    REM   CHECK TO SEE IF THOSE CHECKS WHICH HAVE BEEN WRITTEN ARE ON
1230    REM   THE STATEMENT
1240    FOR J=1 TO L8
1250    FOR II=1 TO A
1260    IF C(J)=X(II) THEN 1330
1270    NEXT II
1280    N=N+1:Q(N)=C(J):L(N)=A(J)
1290    NEXT J
1300    GOTO 1370
1310    REM  FOR THOSE CHECKS USED BY CUSTOMERS AND ON THE STATEMENT, CHECK
1320    REM   TO SEE IF AMOUNTS CORRESPOND
1330    IF A(J)=Z(J) THEN 1350
1340    PRINT"CHECK NUMBER";C(J);"MAY BE POSTED INCORRECTLY"
1350    X(II)=0
1360    GOTO 1290
1370    REM
1380    REM  COMPUTATION OF S3 WHERE S3=TOTAL AMOUNT OF OUTSTANDING CHECKS
1390    FORI=1TON
1400    LET S3=S3+L(I)
1410    NEXTI
1420    PRINT
1430    PRINT
1440    REM  INPUT LOOP FOR DEPOSITS MADE AND OUTSTANDING
1450    PRINT"PLEASE ENTER THE NUMBER AND AMOUNT OF EACH DEPOSIT MADE AND"
1460    PRINT"ANY OUTSTANDING AT BEGINNING OF PERIOD"
1470    PRINT"(ENTER 0,0 WHEN COMPLETED)"
1480    PRINT "ENTER NUMBER, AMOUNT"
1490    FOR I=1 TO 100
1500    REM  D( ) IS DEPOSIT NOS. USED BY CUSTOMER
1510    REM  F( ) IS DEPOSIT AMOUNTS MADE BY CUSTOMER
1520    INPUT D(I),F(I)
1530    IF D(I)=0 THEN 1570
1540    REM  L9=TOTAL NO. OF DEPOSITS MADE AND OUTSTANDING
1550    LET L9=L9+1
1560    NEXT I
1570    FOR J=1 TO L9
1580    FORIX=1TOB
1590    REM  CHECK TO SEE IF THOSE DEPOSITS WHICH HAVE BEEN MADE ARE ON
1600    REM   THE STATEMENT
1610    IF D(J)=Y(IX) THEN 1720
1620    NEXTIX
1630    REM  R=TOTAL NO. OF DEPOSITS OUTSTANDING
1640    LET R=R+1
1650    REM  E( ) IS DEPOSIT NO. OUTSTANDING
1660    REM  G( ) IS DEPOSIT AMOUNTS OUTSTANDING
1670    LETE(R)=D(J)
```

```
1680    LET G(R)=F(J)
1690    GOTO1750
1700    REM   FOR THOSE DEPOSITS MADE AND ON THE STATEMENT,CHECK TO SEE IF
1710    REM    AMOUNTS CORRESPOND
1720    IF F(J)=R(J) THEN 1740
1730    PRINT"DEPOSIT NUMBER";D(J);"MAY BE POSTED INCORRECTLY"
1740    LETY(IX)=0
1750    NEXTJ
1760    REM   COMPUTATION OF S4 WHERE S4 =TOTAL AMOUNT OF OUTSTANDING DEPOSI
        TS
1770    FORI=1TOR
1780    LET S4=S4+G(I)
1790    NEXT I
1800    PRINT
1810    PRINT
1820    PRINT"ENDING BALANCE ON STATEMENT";TAB(36);
1830    PRINTUSING V$;Z;
1840    PRINT
1850    REM   IF N<1 THEN NO CHECKS OUTSTANDING
1860    IF N<1 THEN 2010
1870    PRINT"SUBSTRACT OUTSTANDING CHECKS;"
1880    PRINT "         "; "NUMBER"; "        "; "AMOUNT"
1890    IF N=1 THEN 1960
1900    REM   THIS LOOP PRINTS OUT THOSE CHECKS OUTSTANDING
1910    FOR I=1 TO (N-1)
1920    PRINT Q(I),
1930    PRINTUSING V$;L(I);
1940    PRINT
1950    NEXT I
1960    PRINT Q(N),
1970    PRINTUSING V$;L(N);
1980    PRINTTAB(36);
1990    PRINTUSING V$;S3;
2000    PRINT
2010    PRINT
2020    REM   IF R<1 THEN NO DEPOSITS OUTSTANDING
2030    IF R<1 THEN 2160
2040    PRINT"ADD DEPOSITS OUTSTANDING;"
2050    IF R=1 THEN 2120
2060    REM   THIS LOOP PRINTS OUT THOSE DEPOSITS OUTSTANDING
2070    FOR I=1TOR-1
2080    PRINT E(I),
2090    PRINTUSING V$;G(I);
2100    PRINT
2110    NEXT I
2120    PRINT E(R),
2130    PRINTUSING V$;G(R);
2140    PRINT TAB(36);
2150    PRINTUSING V$;S4;
2160    PRINT
2170    PRINT TAB(36);"-----------------"
2180    REM   S9, THE BOOK BALANCE AT THE END OF THE PERIOD, EQUALS THE
2190    REM   ENDING BALANCE MINUS THE TOTAL AMOUNT OF OUTSTANDING CHECKS
2200    REM   PLUS THE TOTAL AMOUNT OF OUTSTANDING DEPOSITS
2210    LET S9=Z-S3+S4
```

LANCE   — 5 —

```
2220    PRINT"BOOK BALANCE AT END OF PERIOD"$TAB(36)$
2230    PRINTUSING V$;S9;
2240    PRINT
2250    PRINT"SERVICE CHARGES"$TAB(36)$
2260    REM   S=SERVICE CHARGES
2270    REM   GOTO FNP IN LINE 118 FOR PRINT ROUTINE
2280    PRINTUSING V$;S;
2290    PRINT
2300    REM   Z2, THE ADJUSTED BOOK BALANCE AT THE END OF THE PERIOD, EQUALS
2310    REM   THE BOOK BALANCE MINUS SERVICE CHARGES.
2320    LETZ2=Z-S3-S+S4
2330    PRINT TAB(36)$"——————————————"
2340    PRINT"ADJUSTED BOOK BALANCE"$TAB(36)$
2350    PRINTUSING V$;Z2;
2360    PRINT
2370    PRINT
2380    PRINT
2390    PRINT"REVIEW OUTSTANDING CHECKS AND DEPOSITS FOR CORRECT AMOUNTS!"
2400    REM THIS IS TEST REMOVE IT AND ENTER YOUR OWN DATA
2410    REM TEST - 888,1000, 889,2500. 890,3000. 891,500. 892,1500. 0,0
2420    REM TEST - 620,1000. 621,1000. 622,500. 623,1000. 0,0
2430    REM TEST ADJ. BOOK BALANCE = $ 1840.12
2440    REM
2450    REM *** ENTER YOUR DATA HERE  ***
5000    DATA 2345.67,5.55
5100    DATA 888,1000
5200    DATA 889,2000
5300    DATA 890,3000
5400    DATA 0,0
5500    DATA 620,1000
5600    DATA 621,1000
5700    DATA 0,0
5800    END
```

```
RUN "BALANCE",1
              RECONCILEMENT OF BANK ACCOUNT

PLEASE ENTER THE NUMBER AND AMOUNT OF EACH CHECK WRITTEN AND
ANY CHECKS OUTSTANDING AT THE BEGINNING OF THE PERIOD
(ENTER 0,0 WHEN COMPLETED)
ENTER NUMBER, AMOUNT
? 888,1000
? 889,2500
? 890,3000
? 891,500
? 892,1500
? 0,0
CHECK NUMBER 889 MAY BE POSTED INCORRECTLY


PLEASE ENTER THE NUMBER AND AMOUNT OF EACH DEPOSIT MADE AND
ANY OUTSTANDING AT BEGINNING OF PERIOD
(ENTER 0,0 WHEN COMPLETED)
ENTER NUMBER, AMOUNT
? 620,1000
? 621,  1000
? 622,500
? 623,1000
? 0,0


ENDING BALANCE ON STATEMENT            $    2345.67
SUBSTRACT OUTSTANDING CHECKS:
      NUMBER        AMOUNT
   891          $      500.00
   892          $     1500.00          $    2000.00

ADD DEPOSITS OUTSTANDING:
   622          $      500.00
   623          $     1000.00          $    1500.00
                                       ------------
BOOK BALANCE AT END OF PERIOD          $    1845.67
SERVICE CHARGES                        $       5.55
                                       ------------
ADJUSTED BOOK BALANCE                  $    1840.12


REVIEW OUTSTANDING CHECKS AND DEPOSITS FOR CORRECT AMOUNTS!
OK
```

CHECKBOOK:

DESCRIPTION

Checkbook is designed to help you balance your checkbook. It may be run whenever needed as it does not require a current bank statement in order to balance your check book.

USERS

Individuals who would like to automate their checkbook or are having trouble keeping it balanced will find checkbook a welcome relief.

INSTRUCTIONS

Before the program is run you must enter your data in data statements as set out in the instructions, after this is done just type RUN and sit back. Detailed instructions may be obtained by listing the program. The program contains two sample runs with data which are almost the same however a mistake has been made in the second example so as to illustrate how the program handles errors.

LIMITATIONS

Lines 105 and 110 in the program contain DEFDBL statements which allow double precision calculations to be computed. If your Basic does not recognize these statements then omit these two lines from the program when loading it into your computer. This program also contains the Print Using V$ statement throughout the source code. If your Basic does not have this statement then replace it with Print and remove the Using V$. Some of the variables used are double alpha characters, ie: DV. These variables may have to be changed to an alpha and numeric character pair for some systems. This program will store and execute in 5K Bytes of free memory in most systems.

LICC COPYRIGHT 1978
BY SCIENTIFIC RESEARCH

```
100    REM CHECKBOK
105    DEFDBL B-D
110    DEFDBL K-S
115    PRINT CHR$(26):PRINT:PRINT:PRINT "COPYRIGHT 1977 BY - SCIENTIFIC RE
       SEARCH ":PRINT:PRINT:PRINT
120    PRINT "IF YOU WANT INSTRUCTIONS TYPE A  1  ELSE A  2  ";:INPUT T
125    IF T<>1 THEN 245
130    PRINT:PRINT:PRINT
135    PRINT "THIS PROGRAM WILL HELP YOU BALANCE YOUR CHECK BOOK."
140    PRINT "IT IS VERY EASY TO USE AND WILL PROMPT YOU FOR ALL"
145    PRINT "NEEDED INFORMATION, BECAUSE THIS PROGRAM IS NOT FILE"
150    PRINT "INTERACTIVE IT WILL BE NECESSARY FOR YOU TO UPDATE THE"
155    PRINT "PROGRAM EACH TIME BEFORE IT IS RUN AND THEN TO SAVE"
160    PRINT "THE UPDATED VERSION AFTER YOU ARE FINISHED. THEN THE"
165    PRINT "NEXT TIME YOU NEED TO USE THE PROGRAM SIMPLY RUN THE"
170    PRINT "MOST RECENT VERSION. IT WILL BE NECESSARY FOR YOU TO"
175    PRINT "SAVE  A NEW COPY EACH TIME OR ELSE YOU WILL HAVE TO REENTER "
180    PRINT "THE CHECKS AND DEPOSITS EACH TIME, AGAIN AND AGAIN."
185    PRINT
190    PRINT "ENTER ALL THE CHECKS YOU HAVE WRITTEN THIS PERIOD IN"
195    PRINT "DATA STATEMENTS STARTING IN LINE 1000. ENTER YOUR NEW"
200    PRINT "DEPOSITS IN DATA STATEMENTS STARTING IN LINE 2000."
205    PRINT "ENTER ALL DEBITS AND SERVICE CHARGES IN LINES 3000."
210    PRINT "ENTER ALL CREDITS IN LINES 4000. AND LINES 5000 TO 5999"
215    PRINT "ARE RESERVED FOR LISTING THE CHECKS THAT HAVE CLEARED"
220    PRINT "ON YOUR ACCOUNT. 6000 TO 6999 ARE RESERVED"
225    PRINT "FOR THE DEPOSITS THAT HAVE CLEARED. IT IS IMPORTANT"
230    PRINT "THAT YOU DON'T REMOVE THE LAST DATA LINE WHICH"
235    PRINT "IS A  0  FOR EACH FIELD."
240    PRINT
245    PRINT:PRINT:PRINT
250    READ CK
255    CV=CV+CK
260    IF CK=0 THEN 275
265    C1=C1+1
270    GOTO 250
275    READ DE
280    DV=DV+DE
285    IF DE=0 THEN 300
290    C2=C2+1
295    GOTO 275
300    READ SE
305    CS=CS+SE
310    IF SE=0 THEN 325
315    C3=C3+1
320    GOTO 300
325    READ CR
330    RC=RC+CR
335    IF CR=0 THEN 350
340    C4=C4+1
345    GOTO 325
350    READ KC
355    CC=CC+KC
360    IF KC=0 THEN 375
365    C5=C5+1
```

```
370    GOTO 350
375    READ BA:BC=BC+BA
380    IF BA=0 THEN 395
385    C6=C6+1
390    GOTO 375
395    REM THIS IS THE BALANCING SECTION
400    PRINT:PRINT
405    PRINT TAB(20):"FROM YOUR BANK STATEMENT ":PRINT
410    PRINT "WHAT IS YOUR OPENING BALANCE ":INPUT OP
415    PRINT "WHAT IS YOUR CLOSING BALANCE ":INPUT CB
420    V$="$######.##"
425    PRINT "WHAT IS THE DATE (IE: 10/23/77) ":INPUT D$
430    PRINT:PRINT
435    PRINT:PRINT:PRINT:PRINT:PRINT "        C H E C K B O O K        B A L A N
       C I N G   ":PRINT:PRINT
440    PRINT TAB(50):"DATE   ":D$:PRINT:PRINT
445    FOR I=1 TO 72:PRINT "-":NEXT I:PRINT:PRINT:PRINT
450    PRINT "TOTAL AMT. OF CHECKS WRITTEN TO DATE      = ":PRINTUSING V$:C
       V
455    PRINT "NUMBER WRITTEN TO DATE              = ":C1
460    PRINT
465    PRINT "TOTAL DEPOSITS MADE TO DATE              = ":PRINTUSING V$:D
       V
470    PRINT "NUMBER OF DEPOSITS TO DATE     = ":C2
475    PRINT
480    PRINT "TOTAL NUMBER OF DEPOSITS CLEARED TO DATE= ":PRINTUSING V$:B
       C
485    PRINT "NUMBER CLEARED                = ":C6
490    PRINT
495    PRINT "OPENING BALANCE THIS PERIOD              = ":PRINTUSING V$:O
       P
500    PRINT
505    PRINT "TOTAL SERVICE CHARGES AND DEBITS TO DATE= ":PRINTUSING V$:C
       S
510    PRINT
515    PRINT "TOTAL CREDITS TO DATE                    = ":PRINTUSING V$:R
       C
520    PRINT
525    PRINT "TOTAL CHECKS CLEARED TO DATE             = ":PRINTUSING V$:C
       C
530    PRINT "NUMBER OF CHECKS CLEARED      = ":C5
535    PRINT
540    PRINT "NUMBER OF CHECKS OUTSTANDING  = ":C1-C5
545    PRINT
550    PRINT "AMOUNT OUTSTANDING AS OF THIS PERIOD     = ":PRINTUSING V$:C
       V-CC
555    PRINT
560    PRINT "CLOSING BANK BALANCE FOR THIS PERIOD     = ":PRINTUSING V$:C
       B
565    BB=BC+RC-CS-CC
570    PRINT "CALCULATED BANK BALANCE FOR THIS PERIOD = ":PRINTUSING V$:B
       B
575    BB=INT(BB*100)/100
580    CB=INT(CB*100)/100
585    IF BB=CB THEN 595
```

UCC COPYRIGHT 1978
BY SCIENTIFIC RESEARCH

```
590    PRINT:PRINT " ****** THERE IS AN ERROR, CHECK YOUR ENTRIES CAREFULL
       Y ****** "
595    PRINT
600    PRINT
605    PRINT
610    PRINT
615    CZ=DV+RC-CS-CV
620    PRINT "TRUE CHECK BOOK BALANCE FOR THIS PERIOD = ";:PRINTUSING V$;C
       Z
625    PRINT TAB(45);"----------------"
630    PRINT
635    PRINT
640    FOR I=1 TO 72:PRINT "-";:NEXT I:PRINT
645    PRINT
650    GOTO 5990
655    REM WITH THE TEST DATA CLOSING BAL. SHOULD BE $ 88.82
660    REM  *** REMOVE ALL THE DATA STATEMENTS AND REPLACE THEM
665    REM  *** WITH YOUR DATA BEFORE YOU USE THIS PROGRAM
670    REM THESE LINES ARE RESERVED FOR CHECKS THAT HAVE BEEN WRITTEN
1000   DATA 23.16,45.19,78.00,12.07,138.76,19.60
1010   DATA 31.79,25.00,45.19,34.10
1020   DATA 19.21
1030   DATA 0
1990   REM THESE LINES HAVE BEEN RESERVED FOR DEPOSITS
2000   DATA 50,100,75,95,20
2010   DATA 100
2020   DATA 75
2030   DATA 25
2040   DATA 0
2990   REM THESE LINES HAVE BEEN RESERVED FOR DEBITS AND SERVICE CHARGES
3000   DATA .25,.25,.25,.5
3010   DATA .25
3020   DATA 0
3990   REM THESE LINES HAVE BEEN RESERVED FOR CREDITS
4000   DATA 7.16
4010   DATA 0
4990   REM THESE LINES HAVE BEEN RESERVED FOR CHECKS THAT CLEARED
5000   DATA 45.19,78.00,19.60,23.16
5010   DATA 31.79,34.10,25.00
5020   DATA 0
5990   REM THESE LINES RESERVED FOR CLERAED DEPOSITS
6000   DATA 50,100,75
6010   DATA 20,95
6020   DATA 0
6030   END
```

```
RUN"CHEKBOOK",2
```

COPYRIGHT 1977 BY - SCIENTIFIC RESEARCH

IF YOU WANT INSTRUCTIONS TYPE A 1 ELSE A 2 ? 1

THIS PROGRAM WILL HELP YOU BALANCE YOUR CHECK BOOK.
IT IS VERY EASY TO USE AND WILL PROMPT YOU FOR ALL
NEEDED INFORMATION. BECAUSE THIS PROGRAM IS NOT FILE
INTERACTIVE IT WILL BE NECESSARY FOR YOU TO UPDATE THE
PROGRAM EACH TIME BEFORE IT IS RUN AND THEN TO SAVE
THE UPDATED VERSION AFTER YOU ARE FINISHED. THEN THE
NEXT TIME YOU NEED TO USE THE PROGRAM SIMPLY RUN THE
MOST RECENT VERSION. IT WILL BE NECESSARY FOR YOU TO
SAVE A NEW COPY EACH TIME OR ELSE YOU WILL HAVE TO REENTER
THE CHECKS AND DEPOSITS EACH TIME, AGAIN AND AGAIN.

ENTER ALL THE CHECKS YOU HAVE WRITTEN THIS PERIOD IN
DATA STATEMENTS STARTING IN LINE 1000. ENTER YOUR NEW
DEPOSITS IN DATA STATEMENTS STARTING IN LINE 2000.
ENTER ALL DEBITS AND SERVICE CHARGES IN LINES 3000.
ENTER ALL CREDITS IN LINES 4000. AND LINES 5000 TO 5999
ARE RESERVED FOR LISTING THE CHECKS THAT HAVE CLEARED
ON YOUR ACCOUNT. 6000 TO 6999 ARE RESERVED
FOR THE DEPOSITS THAT HAVE CLEARED. IT IS IMPORTANT
THAT YOU DON'T REMOVE THE LAST DATA LINE WHICH
IS A 0 FOR EACH FIELD.

FROM YOUR BANK STATEMENT

WHAT IS YOUR OPENING BALANCE ? 0
WHAT IS YOUR CLOSING BALANCE ? 88.82
WHAT IS THE DATE (IE: 10/23/77) ? 10/23/77

CHECKBOOK BALANCING

DATE 10/23/77

TOTAL AMT. OF CHECKS WRITTEN TO DATE   = $ 472.07
NUMBER WRITTEN TO DATE   = 11

TOTAL DEPOSITS MADE TO DATE   = $ 540.00
NUMBER OF DEPOSITS TO DATE   = 8

TOTAL NUMBER OF DEPOSITS CLEARED TO DATE= $ 340.00
NUMBER CLEARED   = 5

OPENING BALANCE THIS PERIOD   = $ 0.00

TOTAL SERVICE CHARGES AND DEBITS TO DATE= $ 1.50

TOTAL CREDITS TO DATE   = $ 7.16

TOTAL CHECKS CLEARED TO DATE   = $ 256.84
NUMBER OF CHECKS CLEARED   = 7

NUMBER OF CHECKS OUTSTANDING = 4

AMOUNT OUTSTANDING AS OF THIS PERIOD = $ 215.23

CLOSING BANK BALANCE FOR THIS PERIOD = $ 88.82
CALCULATED BANK BALANCE FOR THIS PERIOD = $ 88.82

TRUE CHECK BOOK BALANCE FOR THIS PERIOD = $ 73.59

FROM YOUR BANK STATEMENT

WHAT IS YOUR OPENING BALANCE ? 0
WHAT IS YOUR CLOSING BALANCE ? 88.83
WHAT IS THE DATE (IE: 10/23/7) ? 10/23/77

CHECKBOOK   BALANCING

DATE   10/23/77

TOTAL AMT. OF CHECKS WRITTEN TO DATE   = $ 472.07
NUMBER WRITTEN TO DATE   = 11

TOTAL DEPOSITS MADE TO DATE   = $ 540.00
NUMBER OF DEPOSITS TO DATE   = 8

TOTAL NUMBER OF DEPOSITS CLEARED TO DATE= $ 340.00
NUMBER CLEARED   = 5

OPENING BALANCE THIS PERIOD   = $ 0.00

TOTAL SERVICE CHARGES AND DEBITS TO DATE= $ 1.50

TOTAL CREDITS TO DATE   = $ 7.16

TOTAL CHECKS CLEARED TO DATE   = $ 256.84
NUMBER OF CHECKS CLEARED   = 7

NUMBER OF CHECKS OUTSTANDING   = 4

AMOUNT OUTSTANDING AS OF THIS PERIOD   = $ 215.23

CLOSING BANK BALANCE FOR THIS PERIOD   = $ 88.83
CALCULATED BANK BALANCE FOR THIS PERIOD = $ 88.82

 ****** THERE IS AN ERROR. CHECK YOUR ENTRIES CAREFULLY ******

TRUE CHECK BOOK BALANCE FOR THIS PERIOD = $ 73.59

INSTL078:

DESCRIPTION

Instlo 78 determines loan parameters that use the rule of 78's. This is the type of loan one would have if purchasing a car, boat, mobile home, etc. It is vastly different from regular compound interest, which is more familiar to most people.

USERS

Individuals planning to buy or who have already bought a large item, such as a car or boat and would like to know what is really owed on the item before buying, trading or selling it.

INSTRUCTIONS

Enter and just type RUN, the program will ask for all required inputs.

LIMITATIONS

This program uses multiple statements per line. Each new statement, within a line, is separated from the last one by a colon. The CHR $ (26) statement in this program is used to clear the CRT screen. If your system does not use this statement it may be deleted. Several of the variables contained in the source code are double alpha characters and may have to be converted to an alpha and numeric character pair for some systems. The source code will require 2K of memory to store and it will execute in the same 2K Bytes of memory.

UCC COPYRIGHT 1978
BY SCIENTIFIC RESEARCH

```
10     PRINT CHR$(12)$A=12
20     PRINT "THIS CALCULATES INSTALLMENT LOANS (ON THE RULE OF 78'S) "
30     PRINT$PRINT$PRINT "WHAT IS THE AMOUNT YOU ARE GOING TO BORROW (LESS
         INTEREST) "$$INPUT PR
40     PRINT$PRINT "FOR HOW MANY MONTHS "$$INPUT M
50     PRINT$PRINT "AT WHAT INTEREST RATE (IN PERCENTAGE FORM IE$6.25 ) "$
         $INPUT R
60     PRINT$PRINT "WHAT IS THE SALES TAX % "$$INPUT ST
70     PRINT$PRINT "ADD IN ANY OTHER MISC. CHARGES "$$INPUT K
80     PR=PR*(1+ST/100)+K
90     PRINT$PRINT "HOW MUCH DOWN PAYMENT "$$INPUT DP
100    PR=PR-DP
110    PRINT$PRINT$PRINT$PRINT$PRINT"MONTHS  ","MONTHLY/PAYMENT","TOTAL INT
         EREST"$PRINT$PRINT
120    MI=R/1200$MP=PR*MI$IR=(1+MI)^M$PA=MP*IR/(IR-1)
130    PA=INT(100*PA+.01)/100$U=M*PA-PR
140    PRINT M,TAB(A)$PA,U
150    PRINT$PRINT$PRINT$PRINT
160    P=PR
170    IY=0$PRINT$PRINT
180    PRINT "PAYMENT","   PAY-OFF","INTEREST","TOTAL INT. ","TOTAL PAID "
190    PRINT$PRINT
200    FOR I=1 TO M
210    IY=MI*P
220    PP=P+IY
230    IT=IT+IY
240    PP=INT(100*PP+.01)/100
250    PRINT I,PP,TAB(24)$IY$TAB(39)$IT$TAB(54)$PA*I
260    P=P-PA+MI*P
270    NEXT I
280    PRINT "THE PAY-OFF ASSUMES YOU MAKE REGULAR MONTHLY PAYMENTS. THIS"
290    PRINT "AMOUNT INCLUDES ALL INTEREST CHARGES. INTEREST IS THE AMOUNT
         "
300    PRINT "OF YOUR REGULAR MONTHLY PAYMENT WHICH DOES NOT REDUCE THE "
310    PRINT "PRINCIPLE. TOTAL INTEREST IS THE AMOUNT YOU OWE TO THE MONTH
         "
320    PRINT "DUE DATE * REGUARDLESS * OF HOW YOU MAKE PAYMENTS."
330    END
```

```
RUN"INSTL78",1

THIS CALCULATES INSTALLMENT LOANS (ON THE RULE OF 78's)

WHAT IS THE AMOUNT YOU ARE GOING TO BORROW (LESS INTEREST) ? 10000

FOR HOW MANY MONTHS ? 48

AT WHAT INTEREST RATE (IN PERCENTAGE FORM ie36.25 ) ? 9.25

WHAT IS THE SALES TAX % ? 5

ADD IN ANY OTHER MISC. CHARGES ? 75.87

HOW MUCH DOWN PAYMENT ? 250
```

MONTHS	MONTHLY/PAYMENT	TOTAL INTEREST
48	260.65	2185.33

PAYMENT	PAY-OFF	INTEREST	TOTAL INT.	TOTAL PAID
1	10409.8	83.8977	83.8977	260.65
2	10231.6	82.4616	166.359	521.3
3	10051.9	81.0138	247.373	781.95
4	9870.84	79.5543	326.927	1042.6
5	9688.27	78.0828	405.01	1303.25
6	9504.22	76.5995	481.61	1563.9
7	9318.68	75.1041	556.714	1824.55
8	9131.62	73.5965	630.31	2085.2
9	8943.05	72.0767	702.387	2345.85
10	8752.95	70.5446	772.932	2606.5
11	8561.3	68.9999	841.932	2867.15
12	8368.09	67.4428	909.374	3127.8
13	8173.31	65.873	975.247	3388.45
14	7976.95	64.2904	1039.54	3649.1
15	7779	62.695	1102.23	3909.75
16	7579.43	61.0866	1163.32	4170.4
17	7378.25	59.4652	1222.78	4431.05
18	7175.43	57.8305	1280.61	4691.7
19	6970.96	56.1826	1336.8	4952.35

20	6764.83	54.5213	1391.32	5213
21	6557.03	52.8465	1444.17	5473.65
22	6347.54	51.1581	1495.32	5734.3
23	6136.34	49.456	1544.78	5994.95
24	5923.43	47.7401	1592.52	6255.6
25	5708.8	46.0102	1638.53	6516.25
26	5492.41	44.2662	1682.8	6776.9
27	5274.27	42.5081	1725.3	7037.55
28	5054.36	40.7357	1766.04	7298.2
29	4832.65	38.9489	1804.99	7558.85
30	4609.15	37.1476	1842.14	7819.5
31	4383.83	35.3316	1877.47	8080.15
32	4156.68	33.5009	1910.97	8340.8
33	3927.69	31.6553	1942.62	8601.45
34	3696.83	29.7947	1972.42	8862.1
35	3464.1	27.919	2000.34	9122.75
36	3229.48	26.0281	2026.37	9383.4
37	2992.95	24.1218	2050.49	9644.05
38	2754.5	22.2	2072.69	9904.7
39	2514.12	20.2626	2092.95	10165.4
40	2271.78	18.3095	2111.26	10426
41	2027.47	16.3404	2127.6	10686.6
42	1781.17	14.3554	2141.96	10947.3
43	1532.88	12.3543	2154.31	11208
44	1282.56	10.3369	2164.65	11468.6
45	1030.22	8.30309	2172.95	11729.3
46	775.82	6.25277	2179.2	11989.9
47	519.35	4.18579	2183.39	12250.6
48	260.81	2.10202	2185.49	12511.2

THE PAY-OFF ASSUMES YOU MAKE REGULAR MONTHLY PAYMENTS. THIS
AMOUNT INCLUDES ALL INTEREST CHARGES. INTEREST IS THE AMOUNT
OF YOUR REGULAR MONTHLY PAYMENT WHICH DOES NOT REDUCE THE
PRINCIPLE. TOTAL INTEREST IS THE AMOUNT YOU OWE TO THE MONTH
DUE DATE * REGUARDLESS * OF HOW YOU MAKE PAYMENTS.
OK

DEPREC2:

DESCRIPTION

Deprec2 calculates depreciation for any period of time using any of a number of rates of depreciation. The program handles Straight Line, Sum-of-the-Years Digits, Double Declining Balance and % Declining Balance.

USERS

Individuluals interested in maintaining depreciation records over ir-regular periods of time for use in financial sheets or for tax purposes will find this program very useful.

INSTRUCTIONS

Type RUN and the program will ask for all necessary inputs. A sample run is included after the source code listings.

LIMITATIONS

Deprec2 should execute in 2K Bytes of memory in most systems with little or no modifications.

```
10    REM DEPREC2
20    INPUT"THIS DOES DEPREC, 1=ST.LINE; 2=DDB; 3=SYD; >3=%DEC BAL;WHICH"
      ;Q
30    PRINT "INPUT - YR ACQ.(1965), MONTH ACQ.(1-12), LIFE YRS,, SALVAGE
      VALUE"
40    PRINT "INITIAL COST, PRES. YR,, PRES. MONTH ";;INPUT M,P,U,D,R,L2,Y
      1
50    PRINT
60    L3=(L2-M)*12-12
70    L4=(Y1+12)-P
80    L5=L3+L4
90    Y2=L5/12;Y3=INT(Y2+1E-03)
100   Y4=INT(12*(Y2-Y3)+1E-03)
110   IF Q>3 THEN 510
120   IF Q=1 THEN 440
130   IF Q=2 THEN 330
140   REM SYD DEPREC.
150   B1=0;B0=0
160   FOR I=1 TO Y3
170   B8=(R-D-B0)*2
180   B7=(U-I+P/6)
190   B0=(B8/B7)+B0
200   NEXT I
210   IF B0>(R-D) THEN 310
220   FOR I=1 TO (Y3+1)
230   B8=(R-D-B1)*2
240   B7=(U-I+P/6)
250   B1=(B8/B7)+B1
260   NEXT I
270   B9=((B1-B0)/12)*Y4
280   B0=B0+B9
290   IF B0>(R-D) THEN 310
300   GOTO 630
310   B0=R-D
320   GOTO 630
330   REM DDB DEPREC
340   B0=0
350   FOR I=1 TO L5
360   B8=2*(R-B0)
370   B7=12*U
380   B0=B0+(B8/B7)
390   NEXT I
400   IF B0>R-D THEN 420
410   GOTO 630
420   B0=R-D
430   GOTO 630
440   REM ST LINE DEPREC.
450   L6=(R-D)/(12*U)
460   B0=L6*L5
470   IF B0>(R-D) THEN 490
480   GOTO 630
490   B0=(R-D)
500   GOTO 630
510   REM % DECLINING BALANCE DEPREC.
520   Q1=Q/100
```

```
530    B0=0
540    FOR I=1 TO L5
550    B8=Q1*(R-B0)
560    B7=U*12
570    B0=B0+(B8/B7)
580    NEXT I
590    IF B0>(R-D) THEN 610
600    GOTO 630
610    B0=R-D
620    GOTO 630
630    REM GENERATES THE PRINT OUTS
640    PRINT
650    PRINT "ACCUMULATED DEPRECIATION AS OF ";Y1;"/";L2;"= $";B0
660    PRINT "UNDEPRECIATED BALANCE LEFT            ";"= $";R-B0
670    PRINT
680    PRINT "ANOTHER ITEM (Y OR N) ";:INPUT A$
690    IF LEFT$(A$,1)="Y" THEN 710
700    GOTO 740
710    PRINT "WANT YOUR OLD DATA ";:INPUT B$:IF LEFT$(B$,1)<>"Y" THEN 20
720    PRINT "INPUT - DEP.(1,2,3, OR >3), TO0: YEAR, & MONTH. ";
730    INPUT Q,L2,Y1:GOTO 50
740    END
```

1253
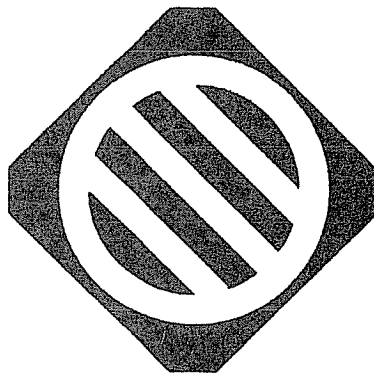
```
RUN"DEPREC2",1
THIS DOES DEPREC. 1=ST.LINE; 2=DDB; 3=SYD; >3=%DEC BAL;WHICH? 1
INPUT - YR ACQ.(1965), MONTH ACQ.(1-12), LIFE YRS., SALVAGE VALUE
INITIAL COST, PRES. YR., PRES. MONTH ? 1975,5,7,100,7500,1977,8


ACCUMULATED DEPRECIATION AS OF  8 / 1977  = $ 2378.57
UNDEPRECIATED BALANCE LEFT                 = $ 5121.43

ANOTHER ITEM (Y or N) ? Y
WANT YOUR OLD DATA ? N
THIS DOES DEPREC. 1=ST.LINE; 2=DDB; 3=SYD; >3=%DEC BAL;WHICH? 2
INPUT - YR ACQ.(1965), MONTH ACQ.(1-12), LIFE YRS., SALVAGE VALUE
INITIAL COST, PRES. YR., PRES. MONTH ? 1976,9,7,150,15000,1977,8


ACCUMULATED DEPRECIATION AS OF  8 / 1977  = $ 3492.75
UNDEPRECIATED BALANCE LEFT                 = $ 11507.2

ANOTHER ITEM (Y or N) ? Y
WANT YOUR OLD DATA ? Y
INPUT - DEP.(1,2,3, OR >3), TOO; YEAR, & MONTH. ? 3,1977,8


ACCUMULATED DEPRECIATION AS OF  8 / 1977  = $ 3960
UNDEPRECIATED BALANCE LEFT                 = $ 11040

ANOTHER ITEM (Y or N) ? N
OK
```

APPENDIX C

FAVORITE   PROGRAM

CONVERSIONS

This appendix contains the listings of several of our earlier programs for which we have had repeated requests. As these programs originally appeared in our Volumes I and II they were not fully compatible with the Basics being used with some of the micro-computers. We decided to include these programs here as we feel they may be of interest to the homeowner. The versions included here are identical to the previous listings with the exception of certain statements that have been modified so as to allow them to be run, as is, in most of the Basics that are currently available. It may still be necessary to make minor modifications before these programs will execute in your system but without writing them specifically for one machine it is impossible to completely avoid this problem. For purposes of modification appendix B at the end of Volume V should be helpful.

The programs included here are:

INSTALLMENT	–	Requires 3K of memory
INTEREST	–	Requires 5K of memory
MORTGAGE	–	Requires 4K of memory
REGRESSION	–	Requires 13K of memory
TEACH ME	–	Requires 8K of memory

```
120    REM--------------------------------------------------------------------
130    REM
140    REM    DESCRIPTION--- CALCULATES THE MONTHLY PAYMENT SCHEDULE
150    REM                   FOR AN INSTALLMENT LOAN.
160    REM
170    REM--------------------------------------------------------------------
180    REM
190    REM    INSTRUCTIONS--- DATA FOR A SAMPLE PROBLEM IS STARTING IN
195    REM                    LINE 1090.
200    REM                    TO USE TYPE "RUN".
210    REM                    ENTER DATA FOR YOUR INSTALLMENT LOANS
220    REM                    BEGINNING IN LINE 1090 AND "RUN".
230    REM
235    REM
240    REM--------------------------------------------------------------------
250    REM
300    V$="#####.##"
310    DEFDBL A-D
320    DEFDBL F
330    DEFDBL S-T
425    REM CALCULATES PAYMENTS FOR AN INSTALLMENT LOAN
429    REM    MONTHS OF THE YEAR
430    DIM C$(12)
432    FOR I=1 TO 12
435    READ C$(I)
437    NEXT I
440    READ G$
445    IF G$="FINISH" THEN 9999
450    READ G1$,G2$
455    READ B,B1,C,A,I,R,R1,M
460    LET C3=C
465    LET C8=1
469    REM    CHECKS FOR FEE RATHER THAN RATE
470    IF R<1 THEN 485
475    LET A5=R
480    GOTO 495
485    LET A5=(A+I)*R*M/12
489    REM    MONTHLY PAYMENT
490    LET T=(I+A+A5)/M
495    IF T*100=INT(T*100) THEN 525
500    LET T=INT(T*100+1)/100
505    IF R<1 THEN 520
510    LET A1=R
515    GOTO 525
519    REM    TOTAL PAYMENTS
520    LET A1=T*M-A-I
525    IF A1*100=INT(A1*100) THEN 535
530    LET A2=INT((A1*(I/(A+I)))*100+.5)/100
535    LET D=A1
540    LET E=I
545    PRINT
550    PRINT
555    PRINT TAB(15);"INSTALLMENT LOAN LEDGER"
560    PRINT TAB(15);"--------------------------------"
565    PRINT
```

```
570    PRINT  G$
575    PRINT  G1$
580    PRINT  G2$
585    PRINT
590    PRINT  "AMOUNT OF LOAN";
595    PRINT  TAB(33);:PRINTUSING V$;A;
600    PRINT
605    PRINT  "INTEREST";
610    PRINT  TAB(33);:PRINTUSING V$;A1;
615    PRINT
620    PRINT  "INSURANCE";
625    PRINT  TAB(33);:PRINTUSING V$;I;
630    PRINT
635    PRINT  TAB(33);"-----------"
636    LET  T7=A+A1+I
640    PRINT  "FACE AMOUNT OF THE NOTE";
642    PRINT  TAB(33);:PRINTUSING V$;T7;
645    PRINT
646    PRINT
647    PRINT
650    IF  R<1 THEN 665
655    PRINT  "FINANCING FEE      ";R
660    GOTO 670
665    PRINT  "ADD ON INTEREST RATE     ";R
670    PRINT  "EFFECTIVE RATE     ";R1
675    PRINT  "DATE OF LOAN IS   ";C$(B);"  ";B1;",";C+1900
680    PRINT  "MONTHS TO MATURITY     ";M
685    PRINT"MONTHLY PAYMENT    $ ";
690    PRINT  TAB(21);:PRINTUSING V$;T;
695    PRINT
700    PRINT
705    PRINT
710    PRINT  TAB(0);"DATE";TAB(7);"DATE";TAB(14);"BALANCE";TAB(23);"PAYOFF
       ";
715    PRINT  TAB(32);"IRREG";TAB(40);"NEW OR";TAB(48);"UNEARN REMAINING";
720    PRINT  TAB(66);"EARNED"
725    PRINT  TAB(0);"DUE";TAB(7);"PAID";TAB(14);"REMAIN";TAB(23);"BALANCE"
       ;
730    PRINT  TAB(32);"PAYMENT";TAB(40);"SHORT";TAB(48);"INSURE";
735    PRINT  TAB(56);"INTEREST";TAB(65);"INTEREST"
740    PRINT  TAB(0);"----";TAB(7);"-----";TAB(14);"-----------";TAB(23);
745    PRINT  "-----------";TAB(32);"-----------";TAB(40);"--------";TAB(48);"-----------";
750    PRINT  TAB(57);"----------";TAB(66);"----------"
755    LET  Z=B+1
760    LET  E5=A1+A+I
765    LET  C1=12-B
770    LET  C=C+1900
775    PRINT  TAB(0);C
780    PRINT
785    PRINT  TAB(0);C$(B);TAB(7);"NONE";
790    PRINT  TAB(13);:PRINTUSING V$;E5;
800    PRINT  TAB(22);:PRINTUSING V$;A;
810    PRINT  TAB(45);:PRINTUSING V$;E;
820    PRINT  TAB(54);:PRINTUSING V$;D;
825    PRINT
```

```
829    REM   CALCULATION AND PRINTING MONTHLY TABLE
830    FOR J=1 TO M
835    LET P=((M-J+1)/(((M+1)/2)*M))*A1
840    LET P=INT(P*100+.5)/100
845    LET S(C8)=S(C8)+P
850    LET F=((M-J+1)/(((M+1)/2)*M))*I
855    LET F=INT(F*100+.5)/100
860    IF J<M THEN 875
865    LET P=D
870    LET F=E
875    LET A=A-(T-P-F)
880    LET A=INT(A*100+.5)/100
884    REM   FINAL PAYMENT
885    LET B1=B5
890    LET B5=INT((B5-T)*100+.5)/100
895    IF J<M THEN 905
900    LET B5=A=0
905    LET D=INT((D-P)*100+.5)/100
910    LET E=INT((E-F)*100+.5)/100
915    PRINT TAB(1);C$(Z);
917    IF B5<0 THEN B5=0!
920    PRINT TAB(13);;PRINTUSING V$;B5;
925    IF A<0 THEN A=0!
930    PRINT TAB(22);;PRINTUSING V$;A;
940    PRINT TAB(45);;PRINTUSING V$;E;
950    PRINT TAB(54);;PRINTUSING V$;D;
960    PRINT TAB(63);;PRINTUSING V$;P;
965    PRINT
969    REM   CHECK FOR END OF CALENDAR YEAR
970    IF J=M THEN 1030
975    LET Z=Z+1
980    IFJ<C1 THEN 1030
985    IF J>C1 THEN 995
990    GOTO 1000
995    IF Z<13 THEN 1030
1000   LET Z=1
1005   LET C=C+1
1010   LET C8=C8+1
1015   PRINT
1020   PRINT TAB(1);C
1025   PRINT
1030   NEXT J
1035   PRINT
1040   IF R<1 THEN 1055
1045   PRINT"FINAL MONTHLY PAYMENT IS   $";
1050   PRINT TAB(27);;PRINTUSING V$;B1;
1055   PRINT
1060   FOR J=1 TO C8
1065   PRINT
1070   PRINT"TOTAL INTEREST PAID IN ";(C3+1900+J-1);" IS ";
1075   PRINT TAB(42);;PRINTUSING V$;S(J);
1080   PRINT "   %"
1082   NEXT J
1084   DATA JAN,FEB,MAR,APR,MAY,JUNE,JULY
1085   DATA AUG,SEPT,OCT,NOV,DEC
```

```
1090    DATA "JAMES JONES","100 CACTUS AVE.","PHOENIX,ARIZ."
1100    DATA 7,01,72,2500,31.91,.06,.11,12
9990    DATA "FINISH"
9991    PRINT ""
9995    GOTO 440
9999    END
```

INSTALLMENT LOAN LEDGER

JAMES JONES
100 CACTUS AVE.
PHOENIX,ARIZ.

AMOUNT OF LOAN	2500.00
INTEREST	152.01
INSURANCE	31.91
FACE AMOUNT OF THE NOTE	2683.92

ADD ON INTEREST RATE	.06
EFFECTIVE RATE	.11
DATE OF LOAN IS JULY 1 , 1972	
MONTHS TO MATURITY	12
MONTHLY PAYMENT $	223.66

DATE DUE	DATE PAID	BALANCE REMAIN	PAYOFF BALANCE	IRREG PAYMENT	NEW OR SHORT	UNEARN INSURE	REMAINING INTEREST	EARNED INTEREST
1972								
JULY	NONE	2683.92	2500.00			31.91	152.01	
AUG		2460.26	2304.64			27.00	128.62	23.39
SEPT		2236.60	2106.92			22.50	107.18	21.44
OCT		2012.94	1906.84			18.41	87.69	19.49
NOV		1789.28	1704.40			14.73	70.15	17.54
DEC		1565.62	1499.60			11.46	54.56	15.59
1973								
JAN		1341.96	1292.44			8.60	40.92	13.64
FEB		1118.30	1082.92			6.15	29.23	11.69
MAR		894.64	871.05			4.10	19.49	9.74
APR		670.98	656.83			2.46	11.69	7.80
MAY		447.32	440.25			1.23	5.84	5.85
JUNE		223.66	221.31			0.41	1.94	3.90
JULY		0.00	0.00			0.00	0.00	1.94

TOTAL INTEREST PAID IN 1972 IS   97.45 %

TOTAL INTEREST PAID IN 1973 IS   54.57 %

OK

UCC COPYRIGHT 1978
BY SCIENTIFIC RESEARCH

```
5    X$="$######.##"
10   REM INTEREST
12   REM
14   REM    DESCRIPTION---COMPUTES AND PRINTS THE ACCRUED INTEREST
15   REM                 ON INSTALLMENT LOANS.
16   REM
18   REM    INSTRUCTIONS ---DATA BEGINS IN LINE 1000 AND CONSISTS OF
20   REM                 UNEARNED INTEREST BY MONTH OF MATURITY.
22   REM
24   REM*********************************************************
     ****
26   REM
30   DIM C$(55),O(100),Q$(55)
60   GOTO 440
70   PRINT USING X$;N9;
75   N0=N9
430  RETURN
440  FOR I=1 TO 12
450  READ C$(I)
455  NEXT I
460  PRINT"WHAT IS THE CURRENT MONTH AND YEAR(E.G. 12,1972";
470  INPUT A,A1
480  IF A1>99 THEN 500
490  LET A1=A1+1900
500  PRINT
510  LET N=12-A+1
520  LET Z=A
530  PRINT TAB(12);"EARNED INTEREST - INSTALLMENT LOANS"
540  PRINT TAB(12);"------------------------------------"
550  PRINT "MONTH OF";TAB(20);"EARNED";TAB(40);"REMAINING UNEARNED"
560  PRINT "MATURITY";TAB(20);"INTEREST";TAB(40);"INTEREST"
570  PRINT "-----------";TAB(20);"--------";TAB(40);"------------------"
575  PRINT
580  PRINT A1
585  REM   **** MAXIMUM MATURITY 4 YEARS   ***************
590  FOR J=1 TO N+48
600  READ P
605  REM    FORMULA FOR SUM OF MONTHS DIGITS   ********
610  LETS=INT(P*(2/(J+1))*100+.5)/100
620  LET T=T +S
630  LET R=P-S
640  LET R1=R1+R
650  PRINT " ";C$(Z);TAB(18);
660  N9=S
663  GOSUB 70
666  S=N0
670  PRINT TAB(40);
680  N9=R
683  GOSUB 70
686  R=N0
690  PRINT
700  LET Z=Z+1
710  IF J=72+N THEN 800
720  IF J<N THEN 800
730  IF J>N THEN 750
```

```
740    GOTO 760
750    IF Z<13 THEN 800
760    LET Z=1
770    LET A1=A1+1
780    PRINT
785    IF J=N+48 THEN 800
790    PRINT A1
800    NEXT J
810    PRINT TAB(20);"————————";TAB(42);"————————"
820    PRINT "TOTALS";TAB(18);
830    N9=T
833    GOSUB 70
836    T=N0
840    PRINT TAB(40);
850    N9=R1
853    GOSUB 70
856    R1=N0
860    PRINT
870    DATA JANUARY,FEBRUARY,MARCH,APRIL,MAY,JUNE,JULY,AUGUST
880    DATA SEPTEMBER,OCTOBER,NOVEMBER,DECEMBER
890    REM
900    REM ENTER TOTAL UNEARNED INTEREST IN DATA STARTING AT LINE 1000
910    REM FOR EACH MONTH OF MATURITY IN CHRONOLOGICAL ORDER.
1000   DATA 800.50,98.35,150.55,270.66,27.77,56.29
1010   DATA 2.65,193.42,362.4,609.55,832.39,936.14
1020   DATA 654.66,1146.61,1521.3,1226.52,2083.25,2455.6
1030   DATA 1350.4,1597.11,2537.63,2362.95,5755.1,5203.83
1040   DATA 4856.7,5819.73,2490.84,3283.03,4817.39,1927.29
1050   DATA 1867.08,2090.91,3912.03,7773.25,5414.98,11028.33
1060   DATA 4660.57,7371.53,2572.17,3190.66,3712.78,927.05
1070   DATA 0,0,790.34,360.38,0,844.86
1080   DATA 0,0,898.64,0,0,426.69
1090   DATA 0,271.43,0,0,0,0
1100   END
```

```
RUN"INTEREST",1
WHAT IS THE CURRENT MONTH AND YEAR(E.G. 12,1972? 8/,1977
```

EARNED INTEREST - INSTALLMENT LOANS

MONTH OF MATURITY	EARNED INTEREST		REMAINING UNEARNED INTEREST	
1977				
AUGUST	$	800.50	$	0.00
SEPTEMBER	$	65.57	$	32.78
OCTOBER	$	75.28	$	75.27
NOVEMBER	$	108.26	$	162.40
DECEMBER	$	9.26	$	18.51
1978				
JANUARY	$	16.08	$	40.21
FEBRUARY	$	0.66	$	1.99
MARCH	$	42.98	$	150.44
APRIL	$	72.48	$	289.92
MAY	$	110.83	$	498.72
JUNE	$	138.73	$	693.66
JULY	$	144.02	$	792.12
AUGUST	$	93.52	$	561.14
SEPTEMBER	$	152.88	$	993.73
OCTOBER	$	190.16	$	1331.14
NOVEMBER	$	144.30	$	1082.22
DECEMBER	$	231.47	$	1851.78
1979				
JANUARY	$	258.48	$	2197.12
FEBRUARY	$	135.04	$	1215.36
MARCH	$	152.11	$	1445.00
APRIL	$	230.69	$	2306.94
MAY	$	205.47	$	2157.48
JUNE	$	479.59	$	5275.51
JULY	$	416.31	$	4787.52
AUGUST	$	373.59	$	4483.11
SEPTEMBER	$	431.09	$	5388.64
OCTOBER	$	177.92	$	2312.92
NOVEMBER	$	226.42	$	3056.61
DECEMBER	$	321.16	$	4496.23

1980				
JANUARY	$	124.34	$	1802.95
FEBRUARY	$	116.69	$	1750.39
MARCH	$	126.73	$	1964.19
APRIL	$	236.12	$	3681.91
MAY	$	444.19	$	7329.06
JUNE	$	300.83	$	5114.15
JULY	$	596.13	$	10432.20
AUGUST	$	245.29	$	4415.28
SEPTEMBER	$	578.03	$	6993.50
OCTOBER	$	128.61	$	2443.56
NOVEMBER	$	155.64	$	3035.02
DECEMBER	$	176.30	$	3535.98
1981				
JANUARY	$	43.12	$	883.93
FEBRUARY	$	0.00	$	0.00
MARCH	$	0.00	$	0.00
APRIL	$	34.36	$	755.93
MAY	$	15.64	$	345.04
JUNE	$	0.00	$	0.00
JULY	$	34.48	$	810.38
AUGUST	$	0.00	$	0.00
SEPTEMBER	$	0.00	$	0.00
OCTOBER	$	34.56	$	864.08
NOVEMBER	$	0.00	$	0.00
DECEMBER	$	0.00	$	0.00
TOTALS	$	8990.10	$	103856.00

OK

UCC COPYRIGHT 1978
BY SCIENTIFIC RESEARCH

```
120    REM
130    REM    DESCRIPTION---THIS BASIC PROGRAM COMPUTES AND PRINTS
140    REM                        MORTGAGE SCHEDULES FOR VARIOUS MORTGAGE
150    REM                        TERMS.
160    REM
170    REM    INSTRUCTIONS---ALL DATA IS ENTERED AS INPUT DURING RUN.
180    REM
190    REM*********************************************************
200    REM
210    DIM Z(10),R(10),Y(10)
220    DIM P(15)
300    V$="#######.##"
310    X$="########.##"
400    DEFDBL A-E
410    DEFDBL O-Z
450    Z$="##.#####"
520    REM
530    PRINT "AMOUNTS TO BE CONSIDERED";
535    Z0=1
540    INPUT Z(Z0)
542    IF Z(Z0)=0 THEN 560
544    Z0=Z0+1
546    GOTO 540
560    PRINT "RATES TO BE CONSIDERED";
561    Z0=Z0-1
565    R0=1
570    INPUT R(R0)
572    IF R(R0)=0 THEN 590
574    R0=R0+1
576    GOTO 570
590    PRINT "YEARS TO BE CONSIDERED";
591    R0=R0-1
595    Y0=1
600    INPUT Y(Y0)
602    IF Y(Y0)=0 THEN 620
604    Y0=Y0+1
606    GOTO 600
620    PRINT
621    Y0=Y0-1
630    PRINT
640    PRINT
650    PRINT
660    PRINT
670    FOR J1=1 TO Z0
680    LET A = Z(J1)
690    PRINT
700    PRINT "FOR A LOAN OF ";
710    PRINTUSING X$;A;
720    PRINT
730    PRINT
740    PRINT
750    PRINT "                   NUMBER                        DECREASE   INCREASE"
760    PRINT "INTEREST       OF      MONTHLY    TOTAL         MONTHLY    TOTAL"
770    PRINT " RATE        YEARS    PAYMENT   INTEREST       PAYMENT    INTEREST"
780    FOR J9 = 1 TO R0
```

```
 790    PRINT
 800    LET R3 = R(J9)/1200
 810    LET M2 = 0
 820    FOR J3 = 1 TO Y0
 830    LET M = (A*R3) / (1-(1/(1+R3)^(12*Y(J3))))
 840    LET I1 = M*12*Y(J3) -A
 850    PRINTUSING Z$;R(J9);
 860    PRINT "%";
 870    PRINTUSING V$;Y(J3);
 880    PRINTUSING V$;M;
 890    PRINTUSING V$;I1;
 900    IF M2 = 0 THEN 930
 910    PRINTUSING V$;M1-M;
 920    PRINTUSING V$;I1-I2;
 930    LET M1 = M
 940    LET I2 = I1
 950    LET M2 = 1
 960    PRINT
 970    NEXT J3
 980    PRINT
 990    NEXT J9
1000    PRINT
1010    NEXT J1
1020    PRINT "DO YOU WISH TO CONSIDER ANOTHER SET OF TERMS";
1030    INPUT Z$
1040    IF Z$ >= "Y" THEN 530
1050    END
```

```
RUN"MORTGAGE",1
AMOUNTS TO BE CONSIDERED? 19500
? 30000
? 50000
? 100000
? 0
RATES TO BE CONSIDERED? 6.75
? 7.25
? 7.75
? 8.25
? 9.0
? 0
YEARS TO BE CONSIDERED? 10
? 20
? 25
? 30
? 0
```

FOR A LOAN OF $ 19500.00

INTEREST RATE	NUMBER OF YEARS	MONTHLY PAYMENT	TOTAL INTEREST	DECREASE MONTHLY PAYMENT	INCREASE TOTAL INTEREST
6.7500%	10.00	223.91	7369.02		
6.7500%	20.00	148.27	16085.20	75.64	8716.18
6.7500%	25.00	134.73	20918.50	13.54	4833.27
6.7500%	30.00	126.48	26031.70	8.25	5113.25
7.2500%	10.00	228.93	7971.97		
7.2500%	20.00	154.12	17489.70	74.81	9517.74
7.2500%	25.00	140.95	22784.30	13.18	5294.60
7.2500%	30.00	133.02	28388.90	7.92	5604.56
7.7500%	10.00	234.02	8582.91		
7.7500%	20.00	160.09	18920.80	73.94	10337.80
7.7500%	25.00	147.29	24687.10	12.80	5766.30
7.7500%	30.00	139.70	30792.40	7.59	6105.37
8.2500%	10.00	239.17	9200.37		
8.2500%	20.00	166.15	20376.40	73.02	11176.00
8.2500%	25.00	153.75	26624.10	12.40	6247.69
8.2500%	30.00	146.50	33238.70	7.25	6614.62
9.0000%	10.00	247.02	10142.50		
9.0000%	20.00	175.45	22607.50	71.57	12465.00
9.0000%	25.00	163.64	29593.30	11.80	6985.77
9.0000%	30.00	156.90	36984.70	6.74	7391.48

FOR A LOAN OF $ 30000.00

INTEREST RATE	NUMBER OF YEARS	MONTHLY PAYMENT	TOTAL INTEREST	DECREASE MONTHLY PAYMENT	INCREASE TOTAL INTEREST
6.7500%	10.00	343.47	11337.00		
6.7500%	20.00	228.11	24746.50	116.36	13409.50
6.7500%	25.00	207.27	32182.30	20.84	7435.81
6.7500%	30.00	194.58	40048.80	12.69	7866.54
7.2500%	10.00	352.20	12264.60		
7.2500%	20.00	237.11	26907.10	115.09	14642.70
7.2500%	25.00	216.84	35052.80	20.27	8145.53
7.2500%	30.00	204.65	43675.20	12.19	8622.40
7.7500%	10.00	360.04	13204.50		
7.7500%	20.00	246.27	19108.90	113.15	15904.40
7.7500%	25.00	226.60	37980.10	19.69	8871.24
7.7500%	30.00	214.92	47373.00	11.68	9392.88
8.2500%	10.00	367.95	14154.40		
8.2500%	20.00	255.62	31348.30	112.84	17193.90
8.2500%	25.00	236.53	40960.10	19.08	9611.83
8.2500%	30.00	225.38	51136.40	11.15	10176.30
9.0000%	10.00	380.03	15603.80		
9.0000%	20.00	269.92	34780.70	110.11	19176.90
9.0000%	25.00	251.76	45528.10	18.16	10747.30
9.0000%	30.00	241.39	56899.60	10.37	11371.50

FOR A LOAN OF $ 50000.00

INTEREST RATE	NUMBER OF YEARS	MONTHLY PAYMENT	TOTAL INTEREST	DECREASE MONTHLY PAYMENT	INCREASE TOTAL INTEREST
6.7500%	10.00	574.12	18894.90		
6.7500%	20.00	380.18	41244.10	193.94	22349.20
6.7500%	25.00	345.46	53637.10	34.73	12393.00
6.7500%	30.00	324.30	66748.00	21.16	13110.90
7.2500%	10.00	587.01	20440.90		
7.2500%	20.00	395.19	44845.40	191.82	24404.50
7.2500%	25.00	361.40	58421.30	33.78	13575.90
7.2500%	30.00	341.09	72792.00	20.32	14370.70
7.7500%	10.00	600.06	22007.40		
7.7500%	20.00	410.48	48514.70	189.58	26507.30
7.7500%	25.00	377.67	63300.20	32.81	14785.40
7.7500%	30.00	358.21	78954.90	19.46	15654.80

INTEREST RATE	NUMBER OF YEARS	MONTHLY PAYMENT	TOTAL INTEREST	DECREASE MONTHLY PAYMENT	INCREASE TOTAL INTEREST
8.2500%	10.00	613.26	23590.70		
8.2500%	20.00	476.63	52247.10	187.23	28656.40
8.2500%	25.00	494.17	68246.80	31.81	16019.70
8.2500%	30.00	375.63	85227.40	18.59	16960.60
9.0000%	10.00	635.39	26006.40		
9.0000%	20.00	449.87	57767.90	103.52	31961.50
9.0000%	25.00	419.60	75980.10	30.27	17912.20
9.0000%	30.00	402.31	94832.70	17.29	18952.50

FOR A LOAN OF $ 100000.00

INTEREST RATE	NUMBER OF YEARS	MONTHLY PAYMENT	TOTAL INTEREST	DECREASE MONTHLY PAYMENT	INCREASE TOTAL INTEREST
6.7500%	10.00	1148.25	37789.90		
6.7500%	20.00	760.37	82488.20	387.88	44698.30
6.7500%	25.00	690.91	107274.00	69.45	24786.00
6.7500%	30.00	648.60	133496.00	42.31	26221.80
7.2500%	10.00	1174.02	40881.40		
7.2500%	20.00	790.38	89690.80	383.64	48808.90
7.2500%	25.00	722.81	116843.00	67.57	27151.80
7.2500%	30.00	682.18	145584.00	40.63	28741.30
7.7500%	10.00	1200.12	44014.90		
7.7500%	20.00	820.96	97029.50	379.17	53014.60
7.7500%	25.00	755.33	126600.00	65.62	29570.80
7.7500%	30.00	716.42	157910.00	38.92	31309.60
8.2500%	10.00	1226.51	47181.40		
8.2500%	20.00	852.06	104494.00	374.45	57312.90
8.2500%	25.00	768.45	136534.00	63.61	32039.40
8.2500%	30.00	751.26	170455.00	37.18	33921.10
9.0000%	10.00	1266.77	52012.80		
9.0000%	20.00	899.73	115936.00	367.04	63923.00
9.0000%	25.00	839.20	151760.00	60.53	35824.50
9.0000%	30.00	804.63	189665.00	34.58	37905.00

DO YOU WISH TO CONSIDER ANOTHER SET OF TERMS? N
OK

```
 25    PRINT
 26    PRINT
 27    PRINT
 28    PRINT
100    DATA ,43,,55,,55,,55,,54,,52,,62,,6,,5,,55,,52,,53,,4
101    DATA ,46,,57,,59,,49,,45,,48,,47,,46,,61,,59,,6,,57
102    DATA ,64,,62,,54,,66,,64
200    DATA 75,66,67,70,64,65,67,63,70,65,73,73,88
201    DATA 75,90,77,72,70,63,66,67,57,55,51,53,58,51,51,54,54
300    DATA 9,4,7,8,8,1,8,3,8,6,8,8,8,7,8,7,8,9,8,8,8,8
301    DATA 8,7,8,6,8,7,8,1,8,5,8,6,8,3,8,9,8,9,8,6,8,7,8,4,1,2,8,4
302    DATA 8,3,7,8,8,5
400    DATA 2,04,1,36,1,36,1,36,1,36,1,36,1,36,1,36,1,59,1,59,1,59,1,59
       ,1,59
401    DATA 1,59,1,13,1,13,1,59,1,59,1,59,1,59,1,59,1,02
402    DATA 1,02,1,02,1,13,1,13,1,13,1,36,1,13,1,13
700    READ E1
701    IF E1 = 1E+38 THEN 1101
702    RESTORE
703    PRINT "DO YOU WANT INSTRUCTIONS (0=NO, 1=YES).... WHICH ";
704    INPUT O0
705    IF O0 = 0 THEN 709
707    PRINT"N=# VALUES, R=# IN VARIABLES, S=# OUT VARIABLES, D IS A CO
       DE"
708    PRINT"VALUE (IE: 1 = TRANSFORMS HAVE BEEN SPECIFIED, 0 = OTHERWI
       SE.)"
709    PRINT " N, R, S, D = ";
710    INPUT P1,R1,N1,D
711    DIM Y(8,100),Z(8,100),S(8,8),T(8,8),W(7,7),H(8,8)
712    DIM B(7,2),F(8,2),E(8,8)
713    LETN=N1−1
714    LETR=R1−1
715    LETP=P1−1
716    IFD=1THEN 721
717    LETN=R
718    FORI=1TON+1:FORJ9=1TOP+1:READZ(I,J9):NEXTJ9:NEXTI
719    GOSUB 818
720    GOTO 732
721    FORI=1TOR+1:FORJ9=1TOP+1:READY(I,J9):NEXTJ9:NEXTI
722    GOSUB 818
723    FORK=1TOP+1
724    FORL=1TOR1
725    LETV(L)=Y(L,K)
726    NEXTL
727    GOSUB 1000
728    FORL=1TON1
729    LETZ(L,K)=X(L)
730    NEXTL
731    NEXTK
732    FORI=1TO3:FORJ9=1TOP+1:Y(I,J9)=0:NEXTJ9:NEXTI
733    LETP2=1/P1
734    FORI=1TON+1:FORJ9=1TON+1:S(I,J9)=0:T(I,J9)=0:NEXTJ9:NEXTI
735    FORI=1TON+1:F(I,1)=0:NEXTI
736    FORI=1TON:FORJ9=1TON:W(I,J9)=0:NEXTJ9:NEXTI
738    FORI=1TON:B(I,1)=0:NEXTI
```

UCC   COPYRIGHT   1978
BY   SCIENTIFIC   RESEARCH

```
739    FORK=1TOP+1
740    FORI=1TON+1
741    LETF(I,1)=F(I,1)+P2*Z(I,K)
742    FORJ=1TON+1
743    LETS(I,J)=S(I,J)+Z(I,K)*Z(J,K)
744    NEXTJ
745    NEXTI
746    NEXTK
747    FORI=1TON+1
748    FORJ=1TON+1
749    LETT(I,J)=S(I,J)-P1*F(I,1)*F(J,1)
750    NEXTJ
751    NEXTI
752    FORJ=1TON+1
753    LETG(J)=SQR(P2*T(J,J))
754    NEXTJ
755    FORI=1TON:FORJ9=1TON:S(I,J9)=0:NEXTJ9:NEXTI
756    FORI=1TON
757    FORJ=1TON
758    LETS(I,J)=T(I+1,J+1)
759    NEXTJ:NEXTI
760    REM  ****************************************************
761    GOSUB 1350
763    FORI=1TON:FORJ=1TON
764    LETB(I,1)=B(I,1)+T(1,J+1)*W(I,J)
765    NEXTJ
766    NEXTI
767    LETA=F(1,1)
768    LETS7=0
769    LETS8=0
770    FORI=1TON
771    LETA=A-B(I,1)*F(I+1,1)
772    NEXTI
773    FORK=1TOP+1
774    LETY(1,K)=A
775    FORJ=1TON
776    LETY(1,K)=Y(1,K)+B(J,1)*Z(J+1,K)
777    NEXTJ
778    LETY(2,K)=Y(1,K)-Z(1,K)
779    LETY(3,K)=100*Y(2,K)/Y(1,K)
780    LETS7=S7+Y(2,K)
781    LETS8=S8+Y(2,K)^2
782    NEXTK
783    LETW8=P2*SQR(P1*S8-S7^2)
784    LETW7=P2*S7
785    PRINT
786    PRINT"      M U L T I V A R I A T E   C U R V E   F I T"
787    PRINT
788    PRINT
789    PRINT"VARIABLE","REGR COEFF","MEAN VALUE","STD DEV"
790    PRINT
791    PRINT" 1 (CONSTANT =";A;")",F(1,1),G(1)
792    PRINT
793    FORI=1TON
794    PRINTI+1,B(I,1),F(I+1,1),G(I+1)
```

1274

```
795    NEXTI
796    PRINT
797    PRINT
798    PRINT"      STANDARD DEVIATION OF RESIDUALS = ";W8
799    PRINT"       INDEX OF DETERMINATION (R-SQ) = ";1-(W8/G(1))^2
800    PRINT"        ZERO-CHECK ON MEAN RESIDUAL = ";W7
801    PRINT
802    PRINT
803    PRINT"      A C T U A L    V S    C A L C U L A T E D"
804    PRINT"                        "
805    PRINT"ACTUAL","CALCULATED","DIFFERENCE"," PCT DIFFER"
806    PRINT
807    FORK=1TOP+1
808    PRINTZ(1,K),Y(1,K),Y(2,K),
809    LETQ=.1*SGN(Y(3,K))*INT(ABS(10*Y(3,K)))
810    IFQ=0THEN 815
811    IFQ<0THEN 813
812    PRINT"          ";
813    PRINTQ
814    GOTO 816
815    PRINT"       .0"
816    NEXTK
817    STOP
818    READE1
819    IFE1=1E+38THEN 824
820    PRINT
821    PRINT"WRONG AMOUNT OF DATA SPECIFIED?  PLEASE CHECK."
822    RESTORE
823    GOTO 703
824    RETURN
825    STOP
1000   PRINT"NO TRANSFORMS"
1100   RETURN
1101   PRINT
1102   PRINT
1103   PRINT"-------"
1104   DATA 1E38, 0,0,0,0,0,0,0
1105   GOTO 9999
1350   REM THESE FOUR SUBS CALCULATE THE INVERSE MATRIX
1351   FOR IK=1 TO N:FOR IL=1 TO N
1352   W(IK,IL)=S(IK,IL)
1353   NEXT IL:NEXT IK
1354   NN=N:GOSUB 2000:U8=U7
1355   IF N<1 THEN 1900
1360   IF N>3 THEN GOSUB 1400
1363   IF N=1 THEN 1890
1364   IF N=3 THEN GOSUB 1800
1365   FOR II=1 TO N:FOR IJ=1 TO N
1368   IF N=2 THEN 1372
1370   W(II,IJ)=E(IJ,II)/U8:GOTO 1375
1372   W(II,IJ)=S(N+1-IJ,N+1-II)/U8
1373   IF II=IJ THEN 1375
1374   W(II,IJ)=-W(II,IJ)
1375   NEXT IJ:NEXT II:RETURN
1400   REM COFACTOR OF MATRIX N>3
```

```
1410    NN=N-1
1411    SG=1
1415    FOR IC=1 TO N:FOR ID=1 TO N
1417    X=1:Y=1
1420    FOR IE=1 TO N
1421    FOR IG=1 TO N
1425    IF IE=IC THEN 1450
1430    IF IG=ID THEN 1450
1440    W(X,Y)=S(IE,IG)
1441    Y=Y+1:IF Y>NN THEN 1444
1442    GOTO 1450
1444    Y=1:X=X+1
1450    NEXT IG:NEXT IE
1460    GOSUB 2000
1465    H(IC,ID)=U7
1470    NEXT ID:NEXT IC
1475    FOR IU=1 TO N:FOR IY=1 TO N
1480    E(IU,IY)=H(IU,IY)
1482    E(IU,IY)=E(IU,IY)*SG:SG=-SG
1485    NEXT IY:NEXT IU:RETURN
1800    REM COFACTOR SECTION N<4
1810    W(1,1)=S(2,2)*S(3,3)-S(2,3)*S(3,2)
1815    W(2,1)=S(1,3)*S(3,2)-S(1,2)*S(3,3)
1820    W(3,1)=S(1,2)*S(2,3)-S(1,3)*S(2,2)
1825    W(1,2)=S(3,1)*S(2,3)-S(2,1)*S(3,3)
1830    W(2,2)=S(1,1)*S(3,3)-S(1,3)*S(3,1)
1835    W(3,2)=S(2,1)*S(1,3)-S(1,1)*S(2,3)
1840    W(1,3)=S(2,1)*S(3,2)-S(3,1)*S(2,2)
1845    W(2,3)=S(3,1)*S(1,2)-S(1,1)*S(3,2)
1850    W(3,3)=S(1,1)*S(2,2)-S(2,1)*S(1,2)
1855    FOR IK=1 TO N:FOR IL=1 TO N
1865    E(IK,IL)=W(IK,IL)
1870    NEXT IL:NEXT IK:RETURN
1890    W(1,1)=1/S(1,1):RETURN
1900    W(1,1)=1:RETURN
1999    REM DETERMINATE OF N DIMENSION MATRIX
2000    SI=1
2010    NM=NN-1
2015    IF NM<=0 THEN 2401
2020    FOR J1=1 TO NM
2025    TE=0
2030    FOR J2=J1 TO NN
2035    IF ABS(W(J2,J1))<TE THEN 2121
2040    TE=ABS(W(J2,J1))
2045    IB=J2
2047    IF N=2 THEN IB=J1
2121    NEXT J2
2130    IF TE<>0 THEN 2201
2135    U7=0:GOTO 2501
2201    IF J1=IB THEN 2301
2210    FOR J2=J1 TO NN
2215    TE=W(J1,J2)
2220    W(J1,J2)=W(IB,J2)
2221    W(IB,J2)=TE
2225    NEXT J2:SI=-SI
```

```
2301   N1=J1+1
2310   FOR J2=N1 TO NN
2314   TE=W(J2,J1)/W(J1,J1)
2317   FOR J3=N1 TO NN
2321   W(J2,J3)=W(J2,J3)-W(J1,J3)*TE
2325   NEXT J3:NEXT J2
2391   NEXT J1
2401   U7=1
2410   FOR J1=1 TO NN
2421   U7=U7*W(J1,J1)
2425   NEXT J1:U7=U7*SI
2501   IF U7<>0 THEN 2550
2510   U7=.99999
2550   RETURN
9999   END
```

```
DO YOU WANT INSTRUCTIONS (0=NO, 1=YES).... WHICH ? 1
N=# VALUES, R=# IN VARIABLES, S=# OUT VARIABLES, D IS A CODE
VALUE (IE: 1 = TRANSFORMS HAVE BEEN SPECIFIED, 0 = OTHERWISE.)
 N, R, S, D = ? 30,4,0,0
```

M U L T I V A R I A T E   C U R V E   F I T

VARIABLE	REGR COEFF	MEAN VALUE	STD DEV
1 (CONSTANT = .936729)		.543333	.0663989
2	-1.42546E-03	65.6667	9.91068
3	-4.03627E-03	8.24334	1.35662
4	-.193223	1.37933	.241536

```
     STANDARD DEVIATION OF RESIDUALS =  .0343456
       INDEX OF DETERMINATION (R-SQ) =  .732439
         ZERO-CHECK ON MEAN RESIDUAL =  1.39078E-07
```

A C T U A L   V S   C A L C U L A T E D

ACTUAL	CALCULATED	DIFFERENCE	PCT DIFFER	
.43	.397705	-.0322953	-8.1	
.55	.548383	-1.61666E-03	-.2	
.55	.545747	-4.25297E-03	-.7	
.55	.540664	-9.33659E-03	-1.7	
.54	.548005	8.00526E-03		1.4
.52	.549002	.0290016		5.2
.62	.542922	-.0770783	-14.1	
.6	.549027	-.0509729	-9.2	
.5	.494608	-5.39231E-03	-1	
.55	.500928	-.0490723	-9.7	
.52	.489928	-.0300723	-6.1	
.53	.493157	-.0368433	-7.4	
.4	.471775	.0717749		15.2
.46	.48748	.0274804		5.6
.57	.555385	-.0146154	-2.6	
.59	.573512	-.0164881	-2.8	
.49	.494179	4.17852E-03		.8
.45	.495415	.045415		9.1
.48	.50499	.0249895		4.9
.47	.501924	.031924		6.3
.46	.498077	.0380768		7.6
.61	.622468	.0124683		2
.59	.62653	.0365301		5.8
.6	.631828	.0318283		5
.57	.608934	.0389338		6.3
.64	.630868	-9.13233E-03	-1.4	
.62	.611785	-8.21531E-03	-1.3	
.54	.567747	.027747		4.8
.66	.60993	-.0500699	-8.2	
.64	.607105	-.0328953	-5.4	

UCC COPYRIGHT 1978
BY SCIENTIFIC RESEARCH

```
 50    PRINT CHR$(26)$PRINT$PRINT
 75    CLEAR 1000
100    V7=0
125    PRINT "WELCOME TO TEACH THE COMPUTER THE ANIMALS"
150    PRINT "WHEN YOU ARE READY TO LEAVE TYPE - STOP"
175    PRINT "IF YOU WOULD LIKE A LISTING OF ALL THE "
200    PRINT "ANIMALS YOU HAVE TAUGHT ME TYPE - LIST"
225    PRINT "WHEN ASKED - ARE YOU THINKING OF AN ANIMAL,"
250    PRINT
275    PRINT "THINK OF AN ANIMAL AND I WILL TRY TO GUESS IT...."
300    N=3
325    DIM A$(50),B$(50),O(50)
330    DIM Z$(50)
350    A$(0)=STR$(4)
375    FOR I=1 TO 3
400    READ A$(I)
425    NEXT I
450    DATA "/QDOES IT SWIM/Y2/N3","/AFISH","/ABIRD"
475    PRINT
500    PRINT
525    PRINT "ARE YOU THINKING OF AN ANIMAL."$
550    INPUT Z9$
575    GOTO 3075
600    K=1
625    IF V7=0 THEN 675
650    GOTO 700
675    GOSUB 2050
700    GOSUB 2900
725    IF LEN(A$(K))=0 THEN 775
750    GOTO 800
775    GOSUB 2050
800    B$(2)=MID$(A$(K),1,2)
825    IF B$(2)="/Q" GOTO 625
850    E$=A$(K)
875    F2=LEN(A$(K))-2
900    I9=3
925    GOSUB 4575
950    PRINT "IS IT A "$K$$
975    B$(3)=K$
1000   INPUT Z7$
1025   Z7$=MID$(Z7$,1,1)
1050   IF Z7$="Y" GOTO 1100
1075   GOTO 1175
1100   PRINT
1125   PRINT " ** I'AM VERY PROUD OF MYSELF. ** "
1150   GOTO 475
1175   PRINT "THE ANIMAL YOU WERE THINKING OF WAS A "$
1200   INPUT Z9$
1225   PRINT "PLEASE TYPE IN A SIMPLE QUESTION THAT WOULD "
1250   PRINT "DISTINGUISH A "Z9$" FROM A "B$(3)
1275   N=N+2
1300   INPUT Z8$
1325   PRINT "THIS WOULD BE A VALID QUESTION FOR A "Z9$$
1350   INPUT Z7$
1375   Z7$=MID$(Z7$,1,1)
```

```
1400    IF Z7$="Y" GOTO 1500
1425    IF Z7$="N" GOTO 1550
1450    PRINT "PLEASE ANSWER 'YES' OR 'NO' "
1475    GOTO 1325
1500    Z6$="N"
1525    GOTO 1625
1550    PRINT "   NO!   O.K.   ......."
1575    Z6$="Y"
1600    GOTO 1625
1625    Z1=VAL(A$(0))
1650    A$(0)=STR$(Z1+2)
1675    A$(Z1)=A$(K)
1700    A$(Z1+1)="/A" + Z9$
1725    H$(1)="/Q" + Z8$
1750    H$(2)=H$(1) + "/"
1775    H$(1)=H$(2) + Z7$
1800    H$(3)=STR$(Z1+1)
1825    H$(2)=H$(1) + H$(3)
1850    H$(1)=H$(2) + "/"
1875    H$(2)=H$(1) + Z6$
1900    H$(4)=STR$(Z1)
1925    H$(1)=H$(2) + H$(4)
1950    A$(K)=H$(1)+"/"
1975    GOTO 500
2000    GOTO 2825
2050    REM
2075    F$="/"
2100    E$=A$(K)
2125    F1=3
2150    GOSUB 4075
2175    F2=E9-3
2200    I9=3
2225    GOSUB 4575
2250    B$(4)=K$
2260    IF V7=0 THEN 2825
2275    PRINT B$(4);
2300    INPUT Z9$
2325    Z9$=MID$(Z9$,1,1)
2350    IF Z9$<>"Y" GOTO 2400
2375    GOTO 2425
2400    Z9$="N"
2425    F$="/" + Z9$
2450    E$=A$(K)
2475    F1=3
2500    GOSUB 4075
2525    Z1=E9+2
2550    F1=Z1
2575    F$="/"
2600    E$=A$(K)
2625    GOSUB 4075
2650    Z2=E9
2675    F2=ABS(Z2-Z1)
2700    I9=Z1
2725    GOSUB 4575
2750    B$(K)=K$
```

```
2775    Z6=VAL(B$(K))
2800    REM
2825    V7=1
2850    RETURN
2900    GOSUB 2050
2910    K=Z6
2925    RETURN
3050    REM THIS SUB CHECKS FOR A VALID ANSWER
3075    B$=MID$(Z9$,1,1)
3100    IF B$="Y" GOTO 600
3125    IF B$="L" GOTO 3350
3150    IF B$="N" GOTO 500
3175    IF B$="S" THEN 4950
3200    PRINT "PLEASE ANSWER YES OR NO!..."
3225    GOTO 500
3350    REM THIS IS THE LIST SUB
3375    PRINT
3400    PRINT
3425    PRINT "THE ANIMALS THAT I ALREADY KNOW ARE:"
3450    PRINT
3475    FOR I=1 TO N
3500    E$=A$(I)
3525    F$="/A"
3550    F1=1
3575    F2=LEN(E$)
3600    I9=3
3625    GOSUB 4075
3650    IF E9=0 GOTO 3900
3675    S$=E$
3725    F3=LEN(E$)
3730    F3=F3-2
3850    J$=MID$(S$,3,F3)
3875    PRINT J$,
3900    NEXT I
3925    PRINT
3950    GOTO 475
4075    REM THIS IS THE INSTR(F1,E$,F$) SUB.
4100    REM F$ IS THE TO BE MATCHED STRING "SE"
4125    REM F1 IS THE STARTING POSITION IN THE E$ STRING
4150    REM THIS SUB RETURNS E9  =0 IF NOT FOUND, ELSE POSITION #
4175    F2=LEN(F$)
4200    F3=LEN(E$)
4225    F4=F3-F2+1
4250    FOR I9=F1 TO F4
4275    GOSUB 4575
4300    F$(1)=K$
4325    IF F$(1)=F$ GOTO 4425
4350    NEXT I9
4375    E9=0
4400    GOTO 4450
4425    E9=I9
4450    RETURN
4575    REM THIS SUB SETS THE CHAR LENGTH
4600    REM K$=MID$(E$,I9,F2)
4650    REM THIS SUB RETURNS K$ AS OUTPUT.
```

```
4850    K$=MID$(E$,I9,F2)
4875    RETURN
4950    PRINT
4975    PRINT
5000    PRINT "THANK YOU COME AGAIN  ."
5025    PRINT
5050    END
```

```
WELCOME TO TEACH THE COMPUTER THE ANIMALS
WHEN YOU ARE READY TO LEAVE TYPE - STOP
IF YOU WOULD LIKE A LISTING OF ALL THE
ANIMALS YOU HAVE TAUGHT ME TYPE - LIST
WHEN ASKED - ARE YOU THINKING OF AN ANIMAL,

THINK OF AN ANIMAL AND I WILL TRY TO GUESS IT....


ARE YOU THINKING OF AN ANIMAL? Y
DOES IT SWIM? N
IS IT A BIRD? N
THE ANIMAL YOU WERE THINKING OF WAS A ? HORSE
PLEASE TYPE IN A SIMPLE QUESTION THAT WOULD
DISTINGUISH A HORSE FROM A BIRD
? DOES IT GALLOP
THIS WOULD BE A VALID QUESTION FOR A HORSE? Y

ARE YOU THINKING OF AN ANIMAL? Y
DOES IT SWIM? N
DOES IT GALLOP? N
IS IT A BIRD? N
THE ANIMAL YOU WERE THINKING OF WAS A ? DOG
PLEASE TYPE IN A SIMPLE QUESTION THAT WOULD
DISTINGUISH A DOG FROM A BIRD
? DOES IT BARK
THIS WOULD BE A VALID QUESTION FOR A DOG? Y

ARE YOU THINKING OF AN ANIMAL? LIST


THE ANIMALS THAT I ALREADY KNOW ARE:

FISH            HORSE           BIRD            DOG


ARE YOU THINKING OF AN ANIMAL? Y
DOES IT SWIM? N
DOES IT GALLOP? N
DOES IT BARK? Y
IS IT A DOG? Y

 ** I'AM VERY PROUD OF MYSELF. **
```

```
ARE YOU THINKING OF AN ANIMAL? Y
DOES IT SWIM? N
DOES IT GALLOP? N
DOES IT BARK? N
IS IT A BIRD? N
THE ANIMAL YOU WERE THINKING OF WAS A ? CAT
PLEASE TYPE IN A SIMPLE QUESTION THAT WOULD
DISTINGUISH A CAT FROM A BIRD
? DOES IT PURR
THIS WOULD BE A VALID QUESTION FOR A CAT? Y

ARE YOU THINKING OF AN ANIMAL? LIST


THE ANIMALS THAT I ALREADY KNOW ARE:

FISH           HORSE           DOG           BIRD           CAT



ARE YOU THINKING OF AN ANIMAL? STOP


THANK YOU COME AGAIN   .

OK
```
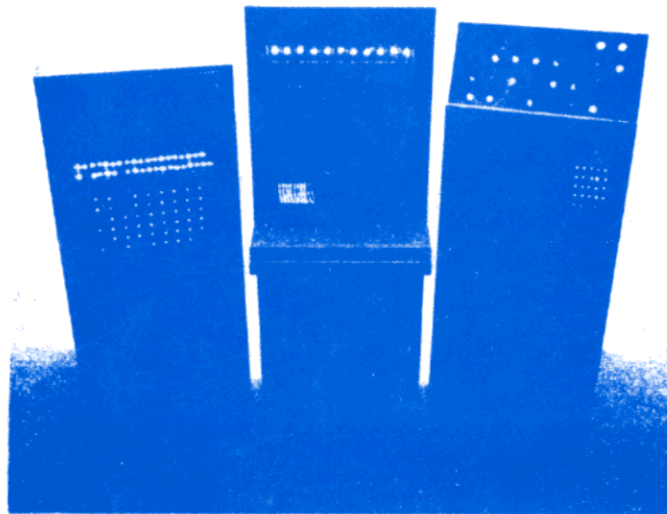
RELIABLE COMPUTER SOFTWARE

FOR YOUR DOWN TO EARTH TASKS