Loan Payments

by Tony Falco

The purchase of a home is probably the largest investment that any of us makes. The short program given below computes the size of a monthly payment for any loan whether it be a car loan, a credit purchase for an appliance or a home mortgage.

A major source of profit to a financial institution is the interest recieved from loans. With this program you can see just what portion of your monthly payment goes to the principal and what part goes toward interest. There are two versions of the program. In the first version, the output goes to the screen. When using this version, you must press enter each time you see a blinking cursor. This will cause the next month's figures to be displayed. The second version sends output to a parallel printer. To run either version simply enter the amount borrowed, the rate of interest, and the number of years for the loan separated by commas. Then press enter.

Let's run through a hypothetical loan. Imagine you are buying a new home for $180,000. You give a $36,000 (20% of $180,000) deposit. This leaves an amount borrowed of $144,000. Suppose you take a 30 year mortgage at 11%. The program tells us that you will make 360 payments of $1,371.35 each. Your first payment includes $1320 for interest and only $51.35 toward the principal. On the 9th payment of the 24th year, you pay $685.44 toward principal and $684.91 (almost equal) in interest. On your last payment $1,358.89 goes toward principal and only $12.46 is interest. Over the 30 year period you will have paid a whopping $349,684.45 in interest fees and $180,000 for the deposit and principal. This totals to $529,684.45.

```
1 CALL CLEAR :: INPUT "$,%,#Yrs:":P,R,T
:: I=R/1200 :: N=12*T :: PY=P*I*(1+I)^N/
((1+I)^N-1):: DISPLAY AT(4,1):" PAYMENT=
$";INT(100*PY+.5)/100:" YR  MO PRINCIPAL
  INTEREST"
2 FOR Y=1 TO T :: FOR M=1 TO 12 :: MI=I*
P :: MP=PY-MI :: DISPLAY AT(7,1):Y;TAB(5
);M;TAB(9);INT(100*MP+.5)/100;TAB(20);IN
T(100*MI+.5)/100 :: P=P-MP :: ACCEPT AT(
24,28):A$ :: NEXT M :: NEXT Y
```

```
1 OPEN #1:"PIO" :: INPUT "$,%,#Yrs:":P,R
,T :: I=R/1200 :: N=12*T :: PY=P*I*(1+I)
^N/((1+I)^N-1):: PRINT #1:"LOAN=$";P,R;"
%","PAYMENT=$";INT(100*PY+.5)/100:"YEAR"
,"MONTH",
2 PRINT #1:"PRINCIPAL","INTEREST" :: FOR
 Y=1 TO T :: FOR M=1 TO 12 :: MI=I*P ::
MP=PY-MI :: PRINT #1:Y,M,INT(100*MP+.5)/
100,INT(100*MI+.5)/100 :: P=P-MP :: NEXT
 M :: NEXT Y :: CLOSE #1
```

HINTS FOR REQUESTING FAIRWARE

By Jim Swedlow

These hints can help you when you send for fairware:

SEND A NOTE or letter asking for the program. Fairware authors are in this to share their effort and to support the 4A. A check without any kind of note is discouraging.

Mention where you heard about the program and describe your system.

IF YOU SEND A DISK, initialize it as SSSD (unless otherwise specified). Don't sweep it, format it and verify the sectors. This will make sure that it is OK. Check with the postal service to make sure that you are using enough postage (and not too much!!). Be sure to include return postage.

Many fairware authors would greatly appreciate getting programs from you — it is a waste to send an empty disk! Send programs from your area that may not have migrated to where the author lives. Mention the programs in your note so the author will look for them.

IF YOU SEND MONEY, print your return address clearly. Better yet, send a mailing label. It not only helps the author but the post office moves your mail faster when the address is typed.

Send your funds in the currency of the author's country. It can be anything from inconvenient to impossible to cash a check written in foreign funds. Your bank may be able to help or you can send an international money order from the post office. This is slow but sure — one that came to me from France took almost a month!

REACT AFTER YOU GET THE PROGRAM. Drop the author a line and let him know what you liked (or didn't like). Many fairware authors report that communication with other 4A owners is very important to them. Many programs have improved significantly from user feedback.

If you ask a question, send a SASE (Self Addressed Stamped Envelope). It will help assure that you get an answer.

SUPPORT FAIRWARE AUTHORS. If a contribution is requested and the program meets your needs, send it with a note.

Some fairware authors give special support to people who support them. Examples are extra documentation, notices of fixes and updates, copies of updates and bonus disks.

Some User Groups collect funds for fairware authors. If the User Group and the author are in different countries, it is a good idea to contact the author before sending anything.

USE COMMON COURTESY. Fairware authors are 4A owners who work and/or go to school full time. Fairware is a side line. Treat them the way you would like to be treated.

IMPACT/99

BY JACK SUGHRUE
Box 459
East Douglas, MA 01516

IMPACT/99 BLUE RIBBON 1989 WINNER

IF THIS ANNUAL AWARD COULD BE GIVEN TO THE SAME COMPANY TWO YEARS IN A ROW, ASGARD SOFTWARE (WITH ITS INCREDIBLY VARIED AND IMPRESSIVE CATALOG) WOULD CERTAINLY BE VERY MUCH IN CONTENTION AGAIN. SO I'M GLAD I DIDN'T HAVE TO MAKE THAT DECISION THIS YEAR.

INSTEAD, IT WAS A CLEAR CHOICE: MYARC IS THE WINNER OF THE 1989 IMPACT/99 BLUE RIBBON AWARD.

MYARC IS ONE OF THE FEW COMPANIES STILL MAKING ANYTHING FOR TI OWNERS ON A STEADY BASIS. BUT IT ISN'T JUST ANYTHING THAT THEY ARE MAKING; THEY HAVE GIVEN US THE MOST POWERFUL HARDWARE AND SOFTWARE THAT EXISTS FOR US. THEY HAVEN'T JUST PROVIDED ENHANCEMENTS; THEY HAVE GIVEN US A FUTURE.

MYARC (THE VISION, THE DREAM, OF FORMER TI EMPLOYEE LOU PHILLIPS) HAS BEEN AROUND A LONG TIME. SINCE 1982, ACTUALLY, WHEN LOU DEVELOPED WINCHESTER HARD-DISK CAPABILITIES WHICH SOLD BETTER IN OTHER COUNTRIES THAN HERE (AS WE WERE MOSTLY ALL FLEDGLINGS AT THE TIME). LATER HE PRODUCED A NOT-VERY-SUCCESSFUL COMPETITOR TO THE TI PE BOX (STILL FLOODING THE INTERESTED MARKET AT THE TIME). SO HE MOVED INTO THE CARD DEVELOPMENT. AND THERE MYARC (WHICH IS A MUTILATED ACRONYMIC FORM OF "MICROCOMPUTER ARCHITECTS") BEGAN TO BLOSSOM.

FROM A PERSONAL VIEWPOINT (AS THIS COLUMN HAS ALWAYS BEEN - FOR BETTER OR WORSE), MYARC AND I HAVE HAD A PERFECT RELATIONSHIP. I OWN LOTS OF THEIR PRODUCTS, AND I HAVE NEVER HAD TO SPEAK TO OR WRITE TO ANYONE ABOUT THEM. THEY HAVE BEEN EASY TO USE AND HAVE NEVER BROKEN DOWN. AND THEY HAVE MADE MY COMPUTING LIFE MUCH RICHER.

A FEW YEARS AGO MY TI DISK CONTROLLER CARD WAS BEHAVING ERRATICALLY. LOTS OF MY FRIENDS RECOMMENDED THE MYARC CARD.

GOT IT.

LOVED IT FROM THE MINUTE I PULLED OUT MY OLD CARD AND PLUGGED IN THE NEW. IT IMMEDIATELY MADE MY ORIGINAL SHUGART SSSD INTO A DSSD DRIVE, SO I DOUBLED MY POTENTIAL ON EVERY DISK AND NO LONGER HAD TO "FLIPPY" ANYTHING.

NOT ONLY DID THE MYARC CONTROLLER WORK SMOOTHLY, BUT IT WAS FASTER THAN MY OLD CONTROLLER, AND IT HAD INSIDE A BUILT-IN DISK CATALOGUER WHICH COULD BE ACCESSED FROM ANYWHERE BY CALL DIR(N). I FOGET HOW WONDERFUL THIS IS UNTIL I GET TO SOMEONE ELSE'S NON-MYARC TI.

AND IT HAD MYARC'S LEGENDARY DISK MANAGEMENT SYSTEM. STILL MY FIRST CHOICE AMONG A PILE OF EXCELLENT SYSTEMS AND ONE THAT REMAINS CONSTANTLY CONFIGURED IN FUNNELWEB ON MY RAM. (BUT I'M GETTING A BIT AHEAD OF MYSELF.) LOTS OF PROGRAMMERS LEARNED A LOT OF TECHNIQUES FROM THIS DM, BUT FOR USERS LIKE MYSELF IT OPENED UP A LARGE WORLD (PARTICULARLY WITHIN ITS FUTURISTIC UTILITY MENU).

NOW MY DRIVE WAS OLD, SO I THOUGHT I'D GET A NEW DSDD ONE AND ADD A POWER SUPPLY FOR MY OLD ONE. I DID. AGAIN, THE CONTROLLER TOOK EVERYTHING IN STRIDE. SWITCHED FROM ONE KIND OF DRIVE TO ANOTHER WITH NO HEAVY BREATHING.

AS MY COMPUTER MADNESS GREW I KNEW I'D NEVER BE HAPPY WITHOUT A RAMDISK OR SOME EXTENDED MEMORY. MYARC HAD JUST COME OUT WITH THEIR 512 CARD TO GO ALONG WITH THEIR 256 AND 128 CARDS.

AS I HAD SUCH GREAT FORTUNE WITH MYARC, I BOUGHT THEIR 512. TOOK OUT MY 32K CARD, PLUGGED IN THE NEW. JUST LIKE THE CONTROLLER, IT WORKED PERFECTLY FROM THAT MOMENT.

I HAD A LARGE RAMDISK THAT I COULD PARTITION AS A BUFFER FOR MY PRINTER AND HAVE LOTS OF OPTIONS AVAILABLE. BUT DID I REALLY NEED ALL THAT SPACE? I DIDN'T THINK SO AT THE TIME. I WONDERED WHY I HADN'T PURCHASED THE SMALLER CARDS WITH MY HARD-EARNED PENNIES.

HOWEVER, WITHIN A COUPLE WEEKS, I HAD ALL THE FUNNELWEB AND PLUS! FILES I USE REGULARLY (AND SOME OTHER VERY SPECIFIC UTILITIES AND GAMES) ALL ON A RAM LOAD WITH AN AUTOMATIC 80K SET ASIDE FOR BUFFING (WHICH TURNED OUT TO BE ONE OF THE GREATEST ENHANCEMENTS I EVER ADDED TO MY TI).

THE RAM PORTION IS WONDERFUL TO OPERATE. EVERYTHING I NEED IS THERE AT THE MOMENT I WANT IT. ALL THE WORD PROCESSING TOOLS. ALL THE ASSEMBLY TOOLS. ALL THE UTILITIES, IN SHORT, THAT I ALWAYS USED TO LOAD ONE-BY-EACH AS NEEDED. IN THOSE DAYS THE THING NOT IN MEMORY WAS THE THING I NEEDED MOST AT ANY GIVEN TIME.

AND MY CONTROLLER? WELL, I JUST DESIGNATED MY 512 CARD AS DRIVE 3, AND IT WENT ABOUT ITS BUSINESS AS IF I WAS HARDLY GIVEN IT AN ADULT TASK. ITS "HO-HUM" MANNER SHOWED ME THAT THE DESIGN OF THE THING WAS INGENIOUS. NO FUSS. NO MUSS. NO BOTHER. I LIKE THINGS THAT WAY.

NOW, HERE I WAS WITH A MYARC-STUFFED FULL-BLOWN SYSTEM WHEN MY EXTRA SSSD ORIGINAL DRIVE (IN THE POWER-SUPPLY BOX) DIED AFTER MUCH FAITHFUL SERVICE. SIX YEARS IS A LONG TIME, I'VE BEEN TOLD. PARTICULARLY FOR THE KIND OF USE I GIVE THE DRIVES. SO I BOUGHT A COUPLE DSDD HALF-HEIGHTS ON SALE, PUT THEM IN THE P-BOX, PUT THE DSDD FROM THE BOX INTO THE

ADDED POWER SUPPLY, AND RAN MY SOFTWARE. BUT ALL MY SOFTWARE HAD BEEN GEARED TO MAKING DRIVE 3 AS MY RAMDISK. MY CONTROLLER WINKED AT ME. "CALL THE EXTRA DRIVE DRIVE 4," IT SAID, "AND KEEP THE RAM AT 3." I TOOK ITS ADVICE. NOW I HAVE ALL FOUR DRIVES (WITH 512 AT 3) OPERATING QUICKLY AND FLAWLESSLY AND WONDERED HOW I EVER DID WITH THREE DRIVES OR TWO. CAN'T EVEN IMAGINE HOW I SURVIVED WITH ONE.

[THERE'S SOMETHING VERY OBSESSIVE ABOUT THIS KIND OF BEHAVIOR.]

ALTHOUGH I AM THE ULTIMATE NON-TECHIE, EVEN I CAN PLUG IN CARDS AND (AS A LAST RESORT) READ MANUALS. MYARC MAKES IT SO EASY, YOU DON'T HAVE TO READ THE MANUALS IN MOST CASES, THOUGH THEY WARN THE USER NEVER TO DO ANYTHING WITHOUT FIRST READING THE MANUAL COMPLETELY.

AFTER A FEW YEARS OF BLISS WITH MYARC, I WAS PLEASED AS PUNCH TO LEARN THAT THEY WERE DEVELOPING A NEW COMPUTER THAT WOULD BE COMPATIBLE WITH THE TI. NOT JUST AN UPGRADE. BUT A NEW COMPUTER.

WELL, LIKE ALL (WITHOUT EXCEPTION) NEW PRODUCTS IN THE COMPUTER INDUSTRY WORLD WIDE, THE ANNOUNCEMENTS OF ITS COMING DRAGGED ON AND ON. BUT EACH STAGE WAS PUBLICIZED TO THE POINT OF ANNOYANCE. PROBABLY WHAT WAS MOST ANNOYING WERE THE DOOMSAYERS. THEY DUMPED ALL OVER MYARC FOR THE DELAYS. IT'S TOO BAD, REALLY. THE KINDS OF STUFF COMING OUT FOR STILL-MANUFACTURED COMPUTERS DOES NOT RAISE THE IRE WITH THE ENDLESS DELAYS BECAUSE THERE IS SO MUCH ELSE BEING MANUFACTURED AND RELEASED. WITH MYARC, IT WAS THE ONLY SHOW IN TOWN. SO IT GOT SPOTLIGHTED. AND, IN SOME PEOPLE'S MINDS, GOT A BAD REP. NOT DESERVED. NOT DESERVED AT ALL.

IF YOU'RE THE ONLY COMPANY MAKING A COMPATIBLE UPGRADE FOR AN ORPHANED COMPUTER, YOU ARE TAKING A GREAT RISK TO BEGIN WITH. YOU GET NO SUPPORT TO CONTINUE WITH. AND YOU GET TO LIVE WITH WHAT YOU HAVE CREATED TO END WITH.

WHAT MYARC ENDED WITH IS A MINOR MIRACLE. THE GENEVE (9640) COSTS ABOUT TWICE WHAT THE KEYBOARDS SOLD SEPARATELY COSTS. LESS THAN TWICE WHAT THE DIFFERENT RAMDISKS COSTS. FOR UNDER $500 99ERS CAN NOW BUY A COMPUTER THAT WAS ALMOST 100% COMPATIBLE WITH EVERY PIECE OF SOFTWARE THEY OWN. IT HAS 640K BUILT IN. IT HAS A FULL-SIZE ENHANCED KEYBOARD. CAN PARTITION A HUGE BUFFER FOR THOSE NOVELS OF YOURS. IT HAS THE BEST GRAPHIC RESOLUTION IN THE BUSINESS. IT COMES WITH SOME PRETTY IMPRESSIVE SOFTWARE AND PORTS FOR MOUSE, PRINTER, MODEM, ETC.

THE GENEVE IS THE ONLY ANSWER FOR TI UPGRADING. THANK GOODNESS IT'S A GREAT ANSWER. IN ADDITION TO THE POWERFUL DOS, THE SOFTWARE INCLUDES MYWORD (AN EXCELLENT 80-COLUMN PROCESSOR), ADVANCED BASIC (THAT GOES FAR BEYOND EXTENDED BASIC), PASCAL, GPL, AND A CARTRIDGE DOWNLOADER.

EARLY OWNERS (LIKE MYSELF) HAVE BEEN RECEIVING UPDATES OF ALL THE SOFTWARE FREE. SO OUR MACHINE KEEPS GETTING BETTER AND BETTER. AS A MATTER OF FACT, THERE IS ANOTHER WHOLE PACKAGE BEING SENT OUT BY MYARC THIS MONTH. I CAN'T WAIT. WHAT A SERVICE THIS IS!

THIS COMPUTER HAS SO MUCH SPEED THAT YOU HAVE TO SET MOST SOFTWARE ON SLOWER MODES IN ORDER TO HANDLE THE DIFFERENCE.

AND, LIKE ALL THE OTHER STUFF FROM MYARC, THIS COMPUTER IS ON A CARD THAT JUST PLUGS RIGHT INTO YOUR P-BOX. (THE MANUAL IS HUGE AND INCLUDES QUITE A SECTION ON THE SUPERB ADVANCED BASIC.) IT WILL TAKE QUITE A BIT OF TIME AND EFFORT ON THE USER'S PART TO USE THE GENEVE TO ITS FULL POTENTIAL (IF ONE CAN EVER REACH THE FULL POTENTIAL OF ANY COMPUTER). THERE ARE ALSO MANY OPTIONS (SUCH AS A 512 CARD) THAT CAN BE ADDED TO THE GENEVE. THERE IS ALSO A GROWING SOFTWARE SUPPORT. MYART IS A MOUSE-SERVED, HIGH-RESOLUTION PACKAGE. MOST TI SOFTWARE MAKERS ARE CREATING GENEVE COMPATIBILITY RIGHT AT THE START.

AND, NOW!!! BEFORE I EVEN GET A CHANCE TO START TO MASTER THE GENEVE, MYARC HAS DONE IT AGAIN!

THEY HAVE JUST RELEASED THE FIRST HARD AND FLOPPY DISK CONTROLLER WITH STREAMER TAPE BACKUP SUPPORT WITH MYARC DM-V, THE MOST INTUITIVE DM ON THE MARKET.

THE CONTROLLER INCLUDES A REAL BUILT-IN TIME CLOCK FOR FILE STAMPING; INTERFACES WITH STANDARD FLOPPY, HARD, AND STREAMER DRIVES; SUPPORT OF UP TO FOUR 5 1/4 AND/OR 3 1/2 DRIVES IN ANY CONFIGURATION; PROVIDES RAMDISK SPEED OF A HARD-DRIVE TRANSFER RATE OF 5MBIT PER SECOND. AND SO ON.

I HAVE NO PLANS IN THE IMMEDIATE FUTURE FOR HARD-DRIVING, BUT IT SURE IS NICE TO KNOW THAT MYARC IS PROVIDING THE OPTIONS IF I DO. IT IS ALSO NICE TO KNOW THAT SOME OF THE BEST MINDS IN THE TI WORLD COMMUNITY HAVE PARTICIPATED IN THE CREATION OF THESE GREAT MYARC ADVANCES.

IT IS A REAL PLEASURE TO PRESENT THIS ANNUAL AWARD TO A COMPANY THAT HAS THE TI OWNERS IN MIND AND WHO HAS BROUGHT US INTO THE HI-TECH AGE ENJOYED BY SO MANY OTHER COMPUTERS. THEIR CONTINUED SUPPORT IN THE FACE OF A LOT OF ADVERSITY IS NOT JUST COMMENDABLE BUT ASTOUNDING. MYARC DOESN'T DESERVE THE BUM REP GIVEN TO IT BY THE LOUD (BUT FORTUNATELY SMALL IN NUMBER) COMPLAINERS WHO SEEM TO NEED A SCAPEGOAT FOR THEIR OWN SELF ESTEEM.

CONGRATULATIONS, MYARC! YOU'RE DOING A GREAT JOB, LOU! KEEP IT UP.

The Hidden Powers of Disk Fixer by Bill Gronos. Navarone. This is a 45-page "supplement" to the Disk Fixer manual that contains a chock full bag of tricks. Gronos was the assembly language specialist on Enthusiast 99.

The Innermost Secrets of the TI-99/4A by Randy Holcomb. Patch Publishing, 1984. A collection of articles from Randy's Ravings, a column published in Computer Shopper magazine. Includes a complete disassembly of the RS232 DSR.

The Last Whole TI-99/4A Book: Programs and Possibilities by Paul Garrison. Wiley Press, 1984. Contrary to the promises on the cover, this is not "the only book you need", although it does cover a lot of ground (with a few inaccuracies here and there).

The Last Word on the TI-99/4A by Linda M. Schreiber and Allen R. Schreiber. TAB Books, 1984. "55 practical and entertaining programs, all written in TI Extended Basic", perhaps the best of which are "Battleship" and "Towers Game". (Programs are available on tape.)

The Orphan Chronicles by Ronald G. Albright. Millers Graphics, 1985. A must book! Here you have a very readable survey, informal and informative, of major people, groups, and events in the history of the TI-99/4A, the "orphan" computer. You'll find it impossible to put this book down once you start reading it.

The Texas Instruments Home Computer Idea Book by David H. Ahl. Creative Computing, 1983. "Includes 50 Ready-to-Run Educational Programs", but most of them seem to be written in minimal Basic and make no use of the special features of the TI-99/4A.

The Texas Instruments User's Encyclopedia (TI-99/2, 4, 4A) by Gary Phillips and David Reese. The Book Company, 1984. This is a moderately interesting book to pick up and page through, but the claim that it is your one definitive reference for the TI-99 seems a bit exaggerated.

The TI-99/4A in Bits and Bytes edited by Remo A. Loreto. Remo A. Loreto, 1983. A hodge-podge collection, but one containing within it a number of worthwhile programs (some in Extended Basic) and programming hints.

The TI-99/4A User's Guide by Bill Brewer. Macmillan, 1983. How can you not like a book whose cover blurb says this?: "There is only one home computer priced below $100 that has a microprocessor as powerful as the expensive IBM PCs. And that home computer has

more educational cartridges produced for it than for any other system. It's the TI-99/4A, the best computer value for its price on the market today".

The TI-99/4A User's Guide by Carol Ann Casciato and Donald J. Horsfall. Howard W. Sams, 1983. An excellent book, carefully done, by two authors who know the TI-99/4A well.

The TI Playground by Fred D'Ignazio. Hayden Book Company, 1984. "23 programs for learning and fun", intended for young children.

The Tool Kit Series: TI-99/4A Edition. by Dave Dusthimer and Ted Buchholz. Howard W. Sams, 1984. Brief 5- to 15- line subroutines — dealing with color, sound and music, graphics, animation, and computation – that can be combined to form the basis of educational programs and computer games.

The User's Guide to Texas Instruments TI-99/4A Computer, Software, and Peripherals. Publications International, 1983. A useful guide by the editors of "Consumer Guide", this book has appeared in several different formats.

Things to Do with Your TI-99/4A Computer by Jerry Willis, Merl Miller and D. LaMont Johnson. New American Library, 1983. Part of a series prepared by dilithium Press, this book is fairly competent as an outside look, but unimpressive.

Thinking Forth by Leo Brodie. Prentice-Hall, 1984. This book expands the concepts in "Starting Forth" and stresses the importance of writing programs that not only work, but that are also readable, logical, and that express the best solution in the simplest terms. The book's sub-title is: A language and philosophy for solving problems.

TI-99/4A: 24 Basic Programs by Carol Ann Casciato and Don Horsfall. Howard W. Sams, 1983. Available with optional program cassette. Games, finances, home management, personal records, and utilities are included, all in TI Basic.

TI-99/4A: 51 Fun and Educational Programs by Gil M. Schechter. Howard W. Sams, 1983. Available with optional program cassette. All programs are in TI Basic, and all are probably 4K or less in size.

TI-99/4A Basic Programs by Timothy Orr Knight and Darren LaBatt. Howard W. Sams, 1984. Available with optional program cassette. Although these 30 TI Basic programs were also originally written for the Commodore 64, they are more substantial than those contained in Knight's *TI-99/4A Graphics and Sounds*.

TI-99/4A Basic Reference Manual by Carol Ann Casciato and Donald J. Horsfall. Howard W. Sams, 1984. Only covers TI Basic and not Extended Basic. This book is essentially the User's Reference Guide with some embellishments.

TI-99/4A CALC by Gregory R. Schmalhofer. Howard W. Sams, 1984. If you have a minimal system (console plus cassette), here is a 676-cell spreadsheet you can use for calculating with numbers, formulas, and cell references.

TI-99/4A Console and Peripheral Expansion System Technical Data Manual. Texas Instruments. Contains specifications for designing devices that will be interfaced to the Home Computer. Includes timing diagrams and foldouts showing schematics of the 4A, flex cable interface and P-box. From a software point of view the discussion on PABs and DSRs is useful.

TI-99/4A Favorite Programs Explained by Donald C. Kreutner. Que Corporation, 1983. 40 practical and entertaining programs in TI Basic, with explanations.

TI-99/4A Game Programs by Frederick Holtz. TAB Books, 1983. 32 "games, puzzles, and brain teasers" in TI Basic, with explanations.

TI-99/4A Games by Allen L. Wyatt. Howard W. Sams, 1984. Available with optional program cassette. This 80-page book includes 11 games and 2 utilities, all in Extended Basic.

TI-99/4A Graphics and Sounds by Timothy Orr Knight. Howard W. Sams, 1984. Available with optional program cassette. 37 sample (and simple) TI Basic programs, originally written for the Commodore 64, most of which are rather trivial in nature.

TI-99/4A Intern by Heiner Martin. Verlag fur Technik und Handwerk, 1985. A complete and commented disassembly of the operating system of the 4A. Contains all GROM and ROM listings, as well as discussion of the Graphics Programming Language (GPL). A monumental reference work.

TI-99/4A Technical Data Manual. Texas Instruments.

TI-99/4A Trivia Data Base by James F. Hunter and Gregory L. Guntle. Howard W. Sams, 1984. Although the Trivia game included may be somewhat "trivial" and a shade slow, this is a valuable book for its detailed discussion of good programming techniques in general (including a number of flowcharts) and Extended Basic in particular (including discussion of the use of subprograms). It is also a fairly painless introduction to what data bases are.

TI Basic Computer Programs for the Home by Charles D. Sternberg. Hayden Book Company, 1984. Programs include automobile, conversion, home finances, kitchen helpmates, list, tutorial, and others, and each program is documented with description, symbol table, and output sample. The book is an adaptation for the TI-99/4A of Sternberg's *Basic Computer Programs for the Home*; now if only someone will do an adaptation of his excellent two volumes on *Basic Computer Programs for Business*!

TI Games for Kids by Robert P. Ingalls. Compute! Publications, 1984. An excellent collection of 32 educational game programs in TI Basic for children ages 2 to 17.

TI in Wonderland by Fred D'Ignazio. Hayden Book Company, 1984. "21 programs for learning and fun", intended for youngsters, by the popular author of Katie and the Computer.

TI Logo by Harold Abelson. McGraw-Hill Book Company, 1984. If you have TI Logo II, you already have this excellent book, but if you have TI Logo I, get it!

Timelost (Texas Instruments 99/4A Version) by Joseph C. Girratano, Kris Austen Andrews and Arlan Keith Andrews. Que, 1983. This is a combination comic book, adventure game and Basic program listings. After reading a section of the book, you can key in the corresponding program and go head-to-head with the Slime Creatures and Pitdemons.

Using and Programming the TI-99/4A Including Ready-to-Run Programs by Frederick Holtz. TAB Books, 1983. Although this book is widely distributed, many chapters are either too elementary or too advanced to be of much benefit to the average TI-99/4A user.

Your First TI-99/4A Program by Rodnay Zaks. Like anything done by Zaks, this book is clearly written and well done. It is, however, as the title indicates, a book for those who are just beginning to learn "the basics of BASIC".

Zappers: Having Fun Programming and Playing 23 Games for the TI-99/4A by Henry Mullish and Don Kruger. Simon and Schuster, 1984. Many favorites in TI BASIC, including "Blackjack", "Hangman", "Hidden Word Search", "Othello" ("Flip-a-Disk"), "Simon", and "Tic Tac Toe".

The following are the financial statements for M.U.N.C.H. for the fiscal year
ending 9/30/88.

BALANCE SHEET SEPTEMBER 30, 1988

ASSETS   LIABILITIES
Cash $828.67
Postage   10.00   NONE
Computer system   300.00
Hg. spd. copier   100.00
Disk library   300.00
                 _____

TOTAL ASSETS $1,738.67   NET WORTH $1,738.67

The following is a recap of income and expense for the year ended 9/30/88

INCOME: EXPENSE:

Dues $415.00   Postage $318.25
Fair sales   260.20   Rent   275.00
Raffle   160.00   Supplies   97.00
Software sales   82.40   Miscellaneous   21.50
Newsltr. subs.   60.00   Bank Service Chg.   15.30
Fair Commis.   52.90   CFS Commissions pd.   4.00
                 _____   _____
TOTALS $1,030.50   TOTALS $731.05

RESPECTFULLY SUBMITTED, James W. Cox, Treasurer.

****

FOR SALE:

Epson printer, model MX-80, both serial and paraallel capability. Excellent
condition. Call Bruce Willard at (508) 852-3250

****

LOGIX
By Rich Renth

This program was written in response to a request for a "Mastermind" type program. The object is to put the correct colors in the proper order. Instructions are in the program. This is a challenging game for all ages. Enjoy!!

```
110 CALL CLEAR
120 CALL SCREEN(8)
130 PRINT "(C)olor or (B)lack & white"
140 INPUT "ENTER YOUR LETTER CHOICE >":ANS
150 IF ANS="C" THEN 170
160 CALL SCREEN(16)
170 CALL CLEAR
180 PRINT TAB(10);"L O G I X": :"the object of the game is toguess the proper order and color of ths four pegs that"
190 PRINT "the computer will hide underthe question marks at the top. the four pegs are all a different color, picked"
200 PRINT "from the six colors. the computer will help you each time you enter your four  color guesses, by telling"
210 PRINT "you just how many colors areright and how many of them are in the right row. you can have up to ten attempts"
220 PRINT "to guess the proper order  and color of the hidden pegs": : :" PRESS ANY KEY TO START GAME"
230 CALL KEY(0,K,S)
240 IF S<1 THEN 230
250 DATA 00000000FF,00000000FF10101,00000000F010101,000000001F10101,10101010F,101010101F
260 DATA 10101010FF10101,101010101010101,10101010FF,101010101F10101,10101010F010101,FFB1BDA5A5BD81FF
```

```
270 DATA 9,11,3,14,16,6
280 DATA 0078444478504844,00144428101010,003C40405C44443B,0044444428281010,004444454545428,00782424382424
78
290 FOR X=35 TO 46
300 READ A$
310 CALL CHAR(X,A$)
320 NEXT X
330 IF ANS="B" THEN 370
340 FOR X=96 TO 136 STEP 8
350 CALL CHAR(X,"FFFFFFFFFFFFFFFF")
360 NEXT X
370 FOR X=9 TO 14
380 READ Y
390 CALL COLOR(X,Y,1)
400 NEXT X
410 IF ANS="C" THEN 470
420 FOR X=96 TO 136 STEP 8
430 READ A$
440 CALL COLOR(X/8-3,2,1)
450 CALL CHAR(X,A$)
460 NEXT X
470 RANDOMIZE
480 FOR X=1 TO 4
490 A(X)=INT(RND*6+1)
500 FOR Y=1 TO X-1
510 IF A(X)=A(Y)THEN 490
520 NEXT Y
530 NEXT X
540 CALL CLEAR
550 PRINT TAB(11);"$#$#$#$#Z RIGHT"
560 PRINT CHR$(96);"R ED";TAB(11);"# # # # #"
570 PRINT CHR$(136);"B LUE";TAB(11);"(#+#+#+#' COL  ROW"
580 PRINT CHR$(128);"W HITE";TAB(11);"$#$#$#$#Z"
590 PRINT CHR$(112);"G REEN";TAB(11);"# # # # #"
600 PRINT CHR$(120);"V IOLET";TAB(11);",#)#)#)#-"
610 PRINT CHR$(104);"Y ELLOW";TAB(11);"# # # # #"
620 PRINT TAB(11);",#)#)#)#-"
630 PRINT TAB(11);"# # # # #"
640 PRINT TAB(11);",#)#)#)#-"
650 PRINT TAB(11);"# # # # #"
660 PRINT TAB(11);",#)#)#)#-"
670 PRINT TAB(11);"# # # # #"
680 PRINT TAB(11);",#)#)#)#-"
690 PRINT TAB(11);"# # # # #"
```

```
700 PRINT TAB(11);",#)#)#)#-"
710 PRINT TAB(11);"# # # # #"
720 PRINT TAB(11);",#)#)#)#-"
730 PRINT TAB(11);"# # # # #"
740 PRINT TAB(11);",#)#)#)#-"
750 PRINT TAB(11);"# # # # #"
760 PRINT TAB(11);",#)#)#)#-"
770 PRINT "  COLOR?";TAB(11);"# # # # #"
780 PRINT TAB(11);"(#+#+#+#'"
790 IF ANS="C" THEN 810
800 CALL VCHAR(2,3,32,6)
810 FOR C=14 TO 20 STEP 2
820 FOR R=5 TO 23 STEP 2
830 CALL HCHAR(R,C,46)
840 NEXT R
850 NEXT C
860 FOR C=14 TO 20 STEP 2
870 CALL HCHAR(2,C,63)
880 NEXT C
890 R=23
900 W=0
910 B=0
920 FOR C=14 TO 20 STEP 2
930 GOSUB 1080
940 CALL HCHAR(R,C,K*8+88)
950 IF A(C/2-6)<>K THEN 970
960 B=B+1
970 FOR X=1 TO 4
980 IF A(X)<>K THEN 1000
990 W=W+1
1000 NEXT X
1010 NEXT C
1020 CALL HCHAR(R,24,W+48)
1030 CALL HCHAR(R,29,B+48)
1040 R=R-2
1050 IF B=4 THEN 1340
1060 IF R<5 THEN 1340
1070 GOTO 900
1080 CALL HCHAR(R,C,88)
1090 CALL HCHAR(23,10,95)
1100 CALL KEY(0,K,S)
1110 CALL HCHAR(R,C,32)
1120 CALL HCHAR(23,10,32)
1130 IF S<1 THEN 1080
1140 CALL HCHAR(23,10,X)
1150 IF (K=82)+(K=89)+(K=71)+(K=86)+(K=87)+(K=66)THEN 1190
1160 CALL SOUND(-50,220,0)
1170 CALL SOUND(250,110,0)
1180 GOTO 1080
1190 CALL SOUND(-50,880,0)
1200 CALL SOUND(-50,988,4)
1210 IF K<>82 THEN 1230
```

```
1220 K=1
1230 IF K<>89 THEN 1250
1240 K=2
1250 IF K<>71 THEN 1270
1260 K=3
1270 IF K<>86 THEN 1290
1280 K=4
1290 IF K<>87 THEN 1310
1300 K=5
1310 IF K<>66 THEN 1330
1320 K=6
1330 RETURN
1340 FOR X=1 TO 4
1350 CALL HCHAR(2,X*2+12,A(X)*8+88)
1360 NEXT X
1370 L=11
1380 M$=" WELL YOU "
1390 GOSUB 1700
1400 IF B<4 THEN 1480
1410 M$=" MADE IT"
1420 GOSUB 1700
1430 M$=" IN ONLY"
1440 GOSUB 1700
1450 M$=" "&STR$(ABS((R+1)/2-12))&" TRIES"
1460 GOSUB 1700
1470 GOTO 1540
1480 M$="MIGHT MAKE"
1490 GOSUB 1700
1500 M$=" IT NEXT"
1510 GOSUB 1700
1520 M$=" TIME"
1530 GOSUB 1700
1540 L=L+2
1550 M$=" PLAY"
1560 GOSUB 1700
1570 M$=" AGAIN"
1580 GOSUB 1700
1590 M$=" Y/N?"
1600 L=L+1
1610 CALL KEY(0,K,S)
1620 CALL HCHAR(20,5,32)
1630 CALL HCHAR(20,7,32)
1640 GOSUB 1700
1650 L=20
1660 IF S<1 THEN 1610
1670 IF K=89 THEN 470
1680 IF K<>78 THEN 1610
1690 END
1700 FOR X=1 TO LEN(M$)
1710 C=ASC(SEG$(M$,X,1))
1720 CALL HCHAR(L,X+2,C)
1730 NEXT X
1740 L=L+1
1750 RETURN
```

* Where you see "⌒⌒" ignore. Be sure to start the next char. ie: Don't put spaces in place of this wierd character.

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DECEMBER 13, 1988: HAPPY HOLIDAYS TO ALL!

MUNCH OFFICERS AND NUMBERS (all in 508 area unless noted)

President/Mail	W.C. Wyman	839-4134
Vice~President	Bruce Willard	852/3250
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Treasurer	Jim Cox	869-2704
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Library	Al/Lisa Cecchini	
Disk Librarian	Lou Holmes 617	322/1562
Tape Librarian	Walter Nowak 413	436/7675
+++++++	Jack Sughrue	476/7630

DECEMBER MEETING. This meeting will feature the restart of our Assembly S.I.G. Dan Rogers has once again aagreed to lead this group. It will be taught slow and methodically so all SIG members will enjoy maximum comphrension. It will require some work between meetings. If you are interessted in learning something about asssembly, thiss is the meeting for you. Also, Jack Sughrue will demo the configuration program of the latest version of Funnelweb. This month also promises a very lively sale table and lots of surprises. We will also havee a demo on DM 1000.

NOVEEMBER MEETING. Vice/President bruce Willard presided over the meeting due to the Election night abscence of Corsin, approximately 15 members were present. Jack Sughrue gave an excellent demo of TI Base. The resumption of the Assembly S.I.G. was discused.

RAFFLE. Each month we have a raffle and the dollar donation per ticket helps to cover the monthly fee to rent the hall. This month's raffle will have a TI programming book, two educational game carts and at least one other item.

MONTHLY SALES. At each meeting you have the opportunity to buy and/or sell new or used hardware, software, books and original programs. Please have prices marked on any items you have to sell.

LIBRARY NOTICE. Please return any items borrowed from our library. If you can not come to a meeting or give these items to someone who will be at the meting, please mail any library items to the group address which is listed on the cover of this newsletter. There are no late fees, we don't care how long they have been out, please return these items.

REPRINTS. Reprints of any items in this newsletter is permitted as long as credit is given to M.U.N.C.H.

ARTICLES. I am always looking for articles for this newsletter, anything which interests you will probably interest other members of the TI community, so please share your ideas and opinions with all of us.
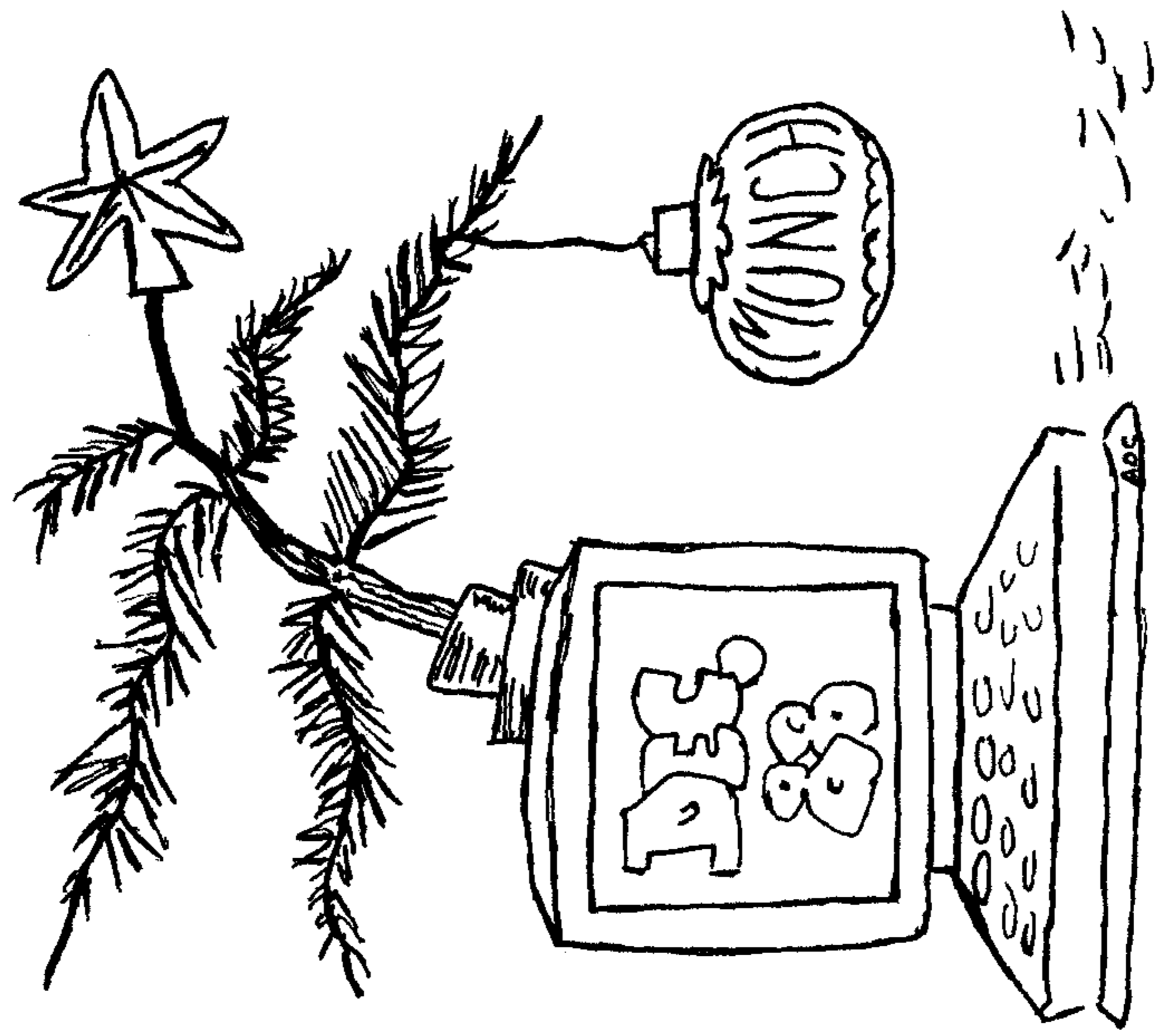
JOIN THE CROWD AT OUR DEC. 13 MEETING

M.U.N.C.H.
P.O. Box 7193
560 LINCOLN STREET
WORCESTER, MA. 01605
Next Meeting: DEC. 13

FIRST CLASS

OSTMASTER: Forwarding and Address Correction Requested.