

PROGRAMS 14-7-86

```

10:REM FUNC. VEC
TORS 1
11:GOTO 30000
12:GOTO 31000
13:GOTO 32000
14:GOTO 33000
15:GOTO 34000
16:GOTO 35000
20:REM FUNC. VEC
TORS 2
21:GOTO 40000
22:GOTO 41000
23:GOTO 42000
24:GOTO 43000
25:GOTO 45000
26:GOTO 46000
30:REM FUNC. VEC
TORS 3
31:GOTO 50000
32:GOTO 51000
33:GOTO 52000
34:GOTO 53000
35:GOTO 54000
36:GOTO 55000

```

```

X 10000:"A":AREAD A
10010:PRINT "A =";
A:END
10020:BEEP 1:PRINT
"RANGE ERROR
!":END
X 11000:"S":AREAD A:
H=A:K$="":L$
="":GOSUB 11
200
11010:K$="J2":H=A/
J2:GOSUB 112
00
11020:K$="J3":H=A/
J3:GOSUB 112
00
11030:K$="J5":H=A/
J5:GOSUB 112
00
11040:K$="J":H=A/J
:GOSUB 11200
11050:K$="e":H=A/
EXP (1):
GOSUB 11200
11100:K$="":L$="J2
":H=A*J2:
GOSUB 11200
11110:L$="J3":H=A*
J3:GOSUB 112
00
11120:L$="J5":H=A*
J5:GOSUB 112
00
11130:L$="J":H=A*J
:GOSUB 11200
11140:L$="e":H=A*
EXP (1):
GOSUB 11200
11190:PRINT "SORRY
...":GOTO 10
010
11200:C=ABS H:B=1
11210:B=B/C:C=1/C-
INT (1/C):IF
B>1E5RETURN
11220:IF C>1E-5
GOTO 11210
11230:B=INT B:IF J
B=A/HLET L$=
K$:K$="":H=H
*B:B=1
11240:D=H*B:IF D-
INT D>.99999
9LET D=INT D
+1
11250:CLS :WAIT 0:
PRINT D;" ";
K$;:IF (B<>1
)OR (L$<>"")
PRINT "/" ;
STR$ (B);L$;
11260:WAIT :PRINT
"":END
11999:END

```

Binary → Decimal

```

12000:"D":AREAD B$
:B=LEN B$:D=
0
12010:FOR I=1TO B:
M$=MID$ (B$,
I,1):IF M$<"
0"OR M$>"1"
GOTO 10020
12020:D=D+(2^(B-I)
*(M$="1")):
NEXT I
12030:PRINT B$;" =
";D:END
13000:"F":AREAD F:
IF F>69GOTO
10020
13010:A=1:FOR I=2
TO F:A=A*I:
NEXT I:GOTO
10010
14000:"G"
14999:END old 16 bit hex
15000:"H":AREAD D:
CLS :IF D>65
535GOTO 1002
0
15010:WAIT 0:PRINT
D;" = ";
15020:H=INT (D/409
6):I=H*4096:
GOSUB 15060
15030:H=INT ((D-I)
/256):J=H*25
6:GOSUB 1506
0
15040:H=INT ((D-I-
J)/16):K=H*1
6:GOSUB 1506
0
15050:H=D-I-J-K:
WAIT :GOSUB
15060:END
15060:PRINT CHR$ (
48+H+7*(H>9)
);:RETURN

```

32 bit

24 bit Dec → Hex IV of 29/10/90 11/5/91

4294967296
268435456
16777216

4294967295

15000 "H": AREAD D: CUS: IF D > 16777215 GOTO 15020

15010 WAIT ϕ : PRINT D; " = 8";

15080 H = INT(D/1048576): H1 = H * 1048576: GOSUB 15080 15140

15090 H = INT((D-H1)/65536): H1 = H * 65536 + H1: GOSUB 15080 15140

15100 H = INT((D-H1)/4096): H1 = H * 4096 + H1: GOSUB 15080 15140

15110 H = INT((D-H1)/256): H1 = H * 256 + H1: GOSUB 15080 15140

15120 H = INT((D-H1)/16): H1 = H * 16 + H1: GOSUB 15080 15140

15130 H = D - H1: WAIT: GOSUB 15080: END

15140 PRINT CHR\$(48+H+7*(H/9));: RETURN

24 bit Hex → Dec 11/10/76 11/5/91 32 bit.

16000 "S": AREAD H\$: H = LEN H\$: IF H > 8 GOTO 16020

16010 CUS: D = ϕ

16020 FOR I = 1 TO H: I\$ = MID\$(H\$, I, 1):

GOSUB 16040: NEXT I

16030 WAIT: PRINT "S"; H\$; " = "; D: END

16040 IF I\$ > "/" AND I\$ < ":" LET D = D + (16 * (H - I)) *

VAL I\$: RETURN

16050 IF I\$ > "@" AND I\$ < "G" LET D = D + (16 * (H - I)) * (ASC I\$ - 55): RETURN

15020 S = LOG D / LOG 16: H1 = ϕ

15030 IF S < 2 GOTO 15120

15040 IF S < 4 GOTO 15100

15050 IF S < 6 GOTO 15080

15060 H = INT(D/268435456): H1 = H * 268435456: GOSUB 15140

15070 H = INT((D-H1)/16777216): H1 = H * 16777216 + H1: GOSUB 15140

```

16000:"J"
16999:END
17000:"K"
17999:END
18000:"L"
18999:END
X 19000:"Z":AREAD A:
    IF A=0GOTO 1
    0020
19010:A=1/A:GOTO 1
    0010
20000:"X"
20010:WAIT 100:
    PRINT "PRICE
    S..."
20020:PRINT "Descr
    . Sale Norm
    Ret Kiosk":
    WAIT
20030:PRINT "PC135
    0 419 499
    599"
20040:PRINT "PC145
    0 279 339
    399"
20060:PRINT "1500
    A 495 599
    695"
20070:PRINT "CE155
    160"
20080:PRINT "CE161
    279"
20090:END
21000:"C"
21999:END
22000:"U"
22999:END

```

~~Binary~~ *Decimal → Binary*

```

X 23000:"B":AREAD D:
    IF D>65535
    GOTO 10020
23010:CLS :WAIT 0:
    PRINT D;" =
    ";;D=D+1:M=
    INT (LOG D/
    LOG 2)+1
23020:FOR I=1TO M:
    S=2^(M-I):J=
    (D/S)1:
    PRINT STR$ (
    J);;D=D-J*S:
    NEXT I
23030:WAIT :PRINT
    "" :END
X 24000:"N":AREAD M:
    M0=M:END
X 25000:"M":AREAD M:
    MR=MR+M:END
26000:" "
26999:END
27000:"="
27999:END

```

```

X30000:REM INTERPOL
      ATION
30010: CLEAR :WAIT
      0: INPUT "N =
      "; N: N=N-1
30020: DIM X(N), Y(N
      ), B(N): FOR I
      =0 TO N
30030: CLS :PRINT "
      X("; STR$ (I+
      1); ")= "; :
      INPUT " "; X(I
      )
30040: CLS :PRINT "
      Y("; STR$ (I+
      1); ")= "; :
      INPUT " "; Y(I
      ): NEXT I
30050: CLS :INPUT "
      Z= "; Z: P=0:
      FOR K=0 TO N:
      B(K)=1
30060: FOR J=0 TO N:
      IF J=K THEN 3
      0080
30070: B(K)=B(K)*(Z
      -X(J))/(X(K)
      -X(J))
30080: NEXT J: P=P+B
      (K)*Y(K):
      NEXT K
30090: WAIT :CLS :
      PRINT "X="; Z
      ; " Y="; P:
      GOTO 30050

```

```

X31000:REM XYZ -> P
      OL
31010: WAIT 0: CLS :
      PRINT "(X, Y,
      Z)";
31020: CURSOR 8:
      INPUT "X = "
      ; X: CURSOR 8:
      PRINT "
      "
31030: CURSOR 8:
      INPUT "Y = "
      ; Y: CURSOR 8:
      PRINT "
      "
31040: CURSOR 8:
      INPUT "Z = "
      ; Z
31050: CLS : R=J(X*X
      +Y*Y+Z*Z): IF
      R=0 PRINT "R=
      0 ANGLE UNDE
      FINED": END
31060: T=ASN (Z/R):
      IF X=0 LET P=
      ATN (Y/X):
      GOTO 31090
31070: A=(Y=0)+SGN
      Y: IF X=0 LET
      P=A*ACS 0:
      GOTO 31090
31080: P=ATN (Y/X)+
      A*ACS -1
31090: WAIT :PRINT
      "R = "; R:
      WAIT 0:
      GPRINT "201C
      141C02"; :
      WAIT :PRINT
      " = "; P
31100: WAIT 0:
      GPRINT "1C2A
      2A1C00"; :
      WAIT :PRINT
      " = "; T: END

```

① ITPL POL XYZ WRT F12 SAIR.

```

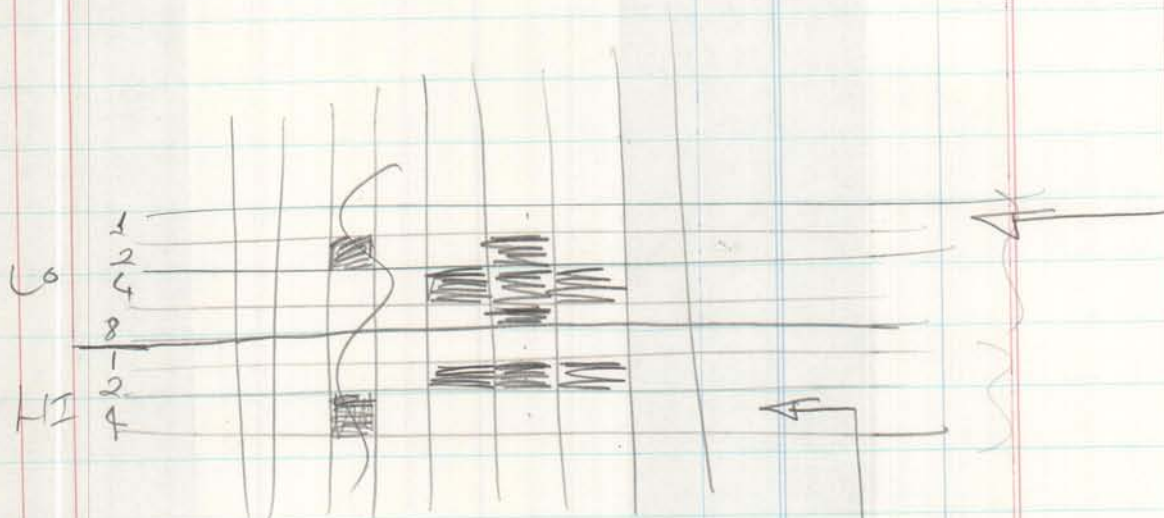
X32000:REM POL -> X
  yZ
32010:CLEAR :DIM A
  $(1)*12:A$(0
  )="201C141C0
  200":A$(1)="
  1C2A2A1C0000
  "
32020:CLS :WAIT 0:
  PRINT "(r, ";
  :GPRINT A$(0
  );:PRINT " ";
  :GPRINT A$(
  1);:PRINT "
  "
32030:CURSOR 8:
  INPUT "r = "
  ;R:CURSOR 8:
  PRINT "
  "
32040:CURSOR 8:
  GPRINT A$(0)
  ;:INPUT " =
  ";P:CURSOR 8
  :PRINT "
  "
32050:CURSOR 8:
  GPRINT A$(1)
  ;:INPUT " =
  ";T
32060:X=R*COS P*
  COS T:Y=R*
  SIN P*COS T
32070:Z=R*SIN T
32080:WAIT :CLS :
  PRINT "X =";
  X
32090:PRINT "Y =";
  Y:PRINT "Z =
  ";Z:END

```

```

X33000:REM WORTELS
  P5-A-1
33010:WAIT :PRINT
  "WORTELS - U
  ERG. LYN 333
  33":INPUT "S
  TARTING POIN
  T= ";U
33020:INPUT "MINUT
  E INTERVAL=
  ";A
33030:INPUT "INTER
  VAL= ";W
33040:G=U:F=U:Z=0
33050:IF Z=0LET C=
  G:Z=1:GOTO 3
  3080
33060:G=G-W:C=G
33080:GOSUB 33100:
  FyF+W:C=F:
  GOSUB 33100:
  GOTO 33050
33100:X=C:GOSUB 33
  333:B=Y:X=A+
  C:GOSUB 3333
  3
33110:D=C:C=D-A*B/
  (Y-B):IF ABS
  (D-C)>=1E-8
  GOTO 33100
33120:BEEP 3:PRINT
  "ANSWER = ";
  C:RETURN
33333:Y=LN (X)
33340:RETURN

```

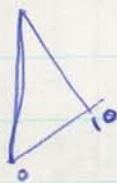


$$SE = 14 = 8 + 4 + 2$$

$$\Phi\Phi = 9000000000$$

$$SE = 900101110$$

$$\int_0^{170} \sin x \quad n=20 = 114,5919472$$



$$\begin{array}{l} 90 \rightarrow 70 \\ 100 \rightarrow 80 \\ 110 \rightarrow 90 \end{array}$$

```

X 34000:REM WORTEL
  2 DE GR.
34010:INPUT "A = "
  ;A:INPUT "B
  = ";B:INPUT
  "C = ";C
34020:D=B^2-4*A*C:
  J$="":IF D<0
  LET D=-D:J$=
  "j"
34030:WAIT 0:A$=
  STR$ (-B/2*A
  ):B$=STR$ (J
  D/2*A):PRINT
  A$;
34040:GPRINT "0000
  0000242E2400-
  000000";:IF
  LEN A$+LEN B
  $>20WAIT :
  PRINT
34045:WAIT :ACTUAL
  (B$):PRINT B
  $;J$
34050:IF J$=""
  PRINT "X1 =
  ":(-B+J$D)/(2*
  A):PRINT "X2
  = ":(-B-J$D)/
  (2*A)
34060:END
35000:REM WRT. 3
  DE GRAAD
35010:PRINT "NO GO
  MATE..."
35999:END

```

```

X 40000:REM SIMPSON
  INTEGR.
40010:WAIT :PRINT
  "SIMPSON - U
  GLK.yLN 3333
  3":CLEAR
40020:INPUT "A = "
  ;A:INPUT "B
  = ";B
40030:INPUT "N = "
  ;N:IF N/2<>
  INT (N/2)
  GOTO 40030
40040:M=(B-A)/N:
  DIM Y(N):L=A
40050:FOR I=0TO N:
  X=L:GOSUB 33
  333 j = for
40060:Y(I)=Y:L=L+M
  ;NEXT I
40070:S=Y(0):L=S:
  FOR I=0TO N:
  IF S>Y(I)LET
  S=Y(I)
40080:NEXT I
40090:S=Y(0)+Y(N):
  FOR I=1TO N-
  1:IF 1/2<>
  INT (1/2)LET
  K=4:GOTO 401
  10
40100:K=2
40110:S=S+K*Y(I):
  NEXT I:S=S*M
  /3:PRINT "F
  = ";S:END

```

```
50000:REM PEEKER
50010:INPUT "PEEKE
      R    START "
      ;M;C=0
50020:A$="";FOR I=
      0TO 15:N=M+I
      :GOSUB 50130
      :A$=A$+B$:
      NEXT I:GOTO
      50110
50030:C$=INKEY$ ;
      IF C$<>" "LET
      C=ASC C$
50040:IF C=61GOTO
      50010
50050:IF C=42CLS :
      END
50060:IF C=8GOTO 5
      0090
50070:IF C=12GOTO
      50100
50080:GOTO 50030
50090:M=M-1:N=M:
      GOSUB 50130:
      A$yB$+LEFT$
      (A$,15):GOTO
      50110
50100:M=M+1:N=M+15
      :GOSUB 50130
      :A$=RIGHT$ (
      A$,15)+B$
50110:WAIT 0:PRINT
      A$;" ";M
50120:GOTO 50030
50130:P=(PEEK N)
      AND 127:B$=
      CHR$ (P*(P>3
      1)+42*(P<32)
      ):RETURN
```

```

54000:REM DOUBLE R
      OTATION
54010:CLEAR :WAIT
      0:PAUSE "DOU
      BLE ROTATION
      ":D$="ABCDEF
      GHIJ":Y$="":
      A=0
54020:FOR I=1TO 10
54030:R=RND 10:Sy2
      ^ (R-1):B=S
      AND A:IF B<>
      0GOTO 54030
54040:A=AOR S:Y$=Y
      $+MID$ (D$,R
      ,1):NEXT I
54050:S$=Y$:N=0:
      REM REPLAY
54060:USING :BEEP
      1:CLS :PRINT
      USING "&&&&&
      &&&&&";S$;"
      *POINT ="":
      CURSOR 20
54070:C=VAL (
      INKEY$ ):IF
      C<1OR C>9
      GOTO 54070
54080:K$=LEFT$ (S$
      ,C):L$=
      RIGHT$ (S$,1
      0-C):IF C=1
      GOTO 54100
54090:K$=RIGHT$ (K
      $,1)+LEFT$ (
      K$,C-1)
54100:IF C=9GOTO 5
      4120
54110:L$=RIGHT$ yL
      $,9-C)+LEFT$
      (L$,1)
54120:S$=K$+L$:N=N
      +1:IF S$<>D$
      GOTO 54060
54130:BEEP 5:CLS :
      USING :PAUSE
      "GAME END.":
      WAIT :PRINT
      "YOUR SCORE
      ":N:END

```

```

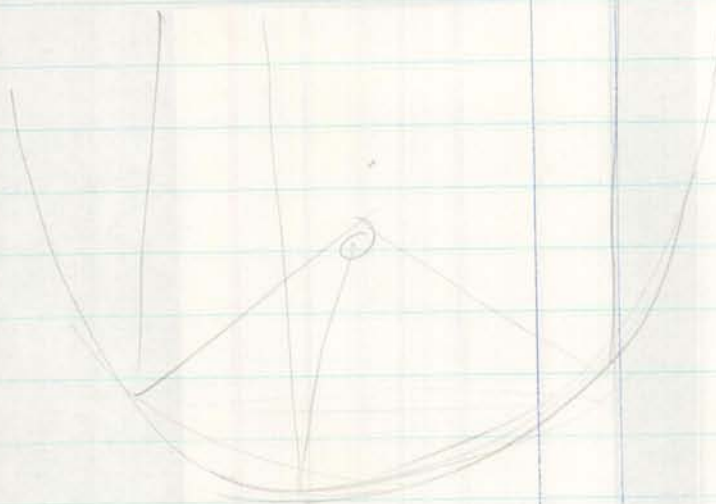
55000:REM MOLE BAS
      HING
55010:CLEAR :MA=6:
      WAIT 150:
      PRINT "Mole
      Bashing Game
      start...":
      IF INKEY$ ="
        "LET MA=2
55020:WAIT 0:CLS :
      RANDOM :
      PRINT T:W=4:
      E=24:F=40
55030:P=RND MA:FOR
      R=1TO 3:A$="
        ":A=&FF:
      GOSUB 55120:
      GOSUB 55170:
      IF A=&FFGOTO
        55060
55040:IF P=AGOTO 5
        5070
55050:GOSUB 55240
55060:IF R=3LET X=
        X+1
55065:NEXT R:GOTO
        55080
55070:GOSUB 55180
55080:WAIT 0:
      GCURSOR C:
      GPRINT "0000
      000000000000
      ":E=E-1:F=F-
      1:IF X>3GOTO
        55250
55090:IF E=0LET W=
        1:GOTO 55030
55100:IF F=0GOTO 5
        5250
55110:GOTO 55030
55120:C=10+((P-1)*
        24):GCURSOR
        C:BEEP 1,10,
        10:WAIT W:ON
        RGOTO 55140,
        55150,55160
31066:RETURN
55140:GPRINT "2040
        607070604020
        ":RETURN
55150:GPRINT "0810
        787C7C781008
        ":RETURN
55160:GPRINT "0264
        7E3F3F7E6402
        ":RETURN
55170:A$=INKEY$ :A
        =INT (ASC (A
        $)-&10):IF A
        <1OR A>6LET
        A=&FF
55175:RETURN

```

```

55180:BEEP 1,30,30
      :GCURSOR C:
      WAIT 10:IF R
        <1OR R>3GOTO
        55230
55190:ON RGOTO 552
        00,55210,552
        20
55200:GPRINT "2010
        307070301020
        ":GOTO 55230
55210:GPRINT "2010
        3C7C7C3C1020
        ":GOTO 55230
55220:GPRINT "2013
        3F7E7E3F1320
        "
55230:T=T+(3-R):
      PRINT T:
      RETURN
55240:T=T-(3-R):
      PRINT T:
      RETURN
55250:WAIT :PRINT
      "GAME OVER
      SCORE :":T::
      GCURSOR 1:
      CLS :END

```



$$\frac{21.856}{205.43}$$

$$\begin{array}{l} -1 \quad -0,5 \pm j 0,866 \\ \quad \quad 0,5 \pm j 0,866 \\ x^5 + x^4 + x^3 + x^2 + x + 1 \end{array}$$

$$\begin{array}{r} \underline{x+1} \quad x^3 + x^2 + x + 1 \\ \quad \quad \quad x^2 \quad \quad +1 \\ (x+1) \overline{) \quad x^3 + x^2 + x + 1} \\ \quad \quad \quad x^3 + x^2 \\ \quad \quad \quad \hline \quad \quad \quad x + 1 \end{array}$$

$$(x^2 + 1)(x + 1) = x^3 + x^2 + x + 1$$

$$\begin{array}{l} x = -1 \\ x^2 = -1 \\ x = \pm j \end{array}$$

$$(x+1)(x+0,5+j0,866)(x+0,5-j0,866)$$

$$\begin{aligned} &(x+0,5+j0,866)(x+0,5-j0,866) \\ &x^2 + 0,5x - j0,866x + 0,5x + j0,866x \\ &+ 0,25 - j0,866 \cdot 0,5 + j0,866 \cdot 0,5 + (0,866)^2 \\ &x^2 + x + 0,25 + \frac{3}{4} \end{aligned}$$

$$\begin{array}{l} x^2 + x + 1 \\ x^2 + x + 1 \end{array}$$

$$\begin{array}{l} 1 \quad -0,5 \pm j \\ \quad \quad \quad 2 \quad \quad \quad \pm j \end{array}$$

35000
40000: REM WORTELS
35000 BAIRSTOW
40010: CLEAR : PRINT
"WRTLS BAIRS
TOW"
40020: INPUT "ORDE
UGLK N = "; N
: IF N<3 PRINT
"FUCK OFF!":
GOTO 35020
40030: DIM A(N+1), B
(N+1), C(N), X
(N), Y(N): R1=
0: S1=0: R2=0:
S2=0
40040: REM "A1X^N+.
..+A(N+1)=0"
40050: FOR I=1 TO N+
1: WAIT 0: CLS
: PRINT "A(";
I: WAIT :
INPUT ")="; A
(I): NEXT I
40060: E=1000
40070: R=0: S=0: Z=0
40080: CLS : V=50:
REM INPUT "#
ITER ="; V:
IF V<4 PRINT
"FUCK OFF!":
GOTO 35080
40100: GOSUB 35600:
WAIT 0
40110: CLS : PRINT Z
; ": W="; F+G+
1;
40120: PRINT " R=";
INT (R*1000)
/1000; " S=";
INT (S*1000)
/1000
40130: WAIT : GOSUB
35700: Z=Z+1:
IF Z>V THEN
END
40140: RR=INT (R*E)
/E: SS=INT (S
*E)/E
40150: IF (RR<>(R1+
R2)/2) OR (SS
<>(S1+S2)/2)
THEN 35100
40160: A=1: B=-R: C=-
S: W=B*B-4*A*
C: IF W<0 THEN
GOSUB 35800:
GOTO 40170
40165: IF W>0 THEN
GOSUB 35900
40170: N=N-2: IF N<2
THEN 35190
40180: FOR I=1 TO N+
1: A(I)=B(I):
NEXT I: Z=0:
GOTO 35100
40190: IF N<1 THEN 3
5210

660
40200: G=G+1: X(G)=
B(2)/B(1)
40210: K=0: IF G=0
THEN 35230
40220: CLS : PRINT "
REELE WRTLS"
: FOR J=1 TO G
: PRINT "X(";
J; ")="; INT (
X(J)*E)/E: K=
K+1
40225: NEXT J: IF F=
0 THEN 35250
40230: CLS : PRINT "
KMPLX WRTLS"
: FOR J=1 TO F
STEP 2: K=K+1
: WAIT 0:
PRINT "X("; K
; ")="; INT (Y
(J)*E)/E;
40240: GPRINT "0000
0000242E2400
000000";:
WAIT : PRINT
"j "; INT (Y(
J+1)*E)/E:
NEXT J
40250: END
40600: B(1)=A(1): C(
1)=A(1): FOR
I=2 TO N+1: B(
I)=A(I)+B(I-
1)*R+B(I-2)*
S: NEXT I
40610: FOR I=2 TO N:
C(I)=B(I)+C(
I-1)*R+C(I-2
) *S: NEXT I:
RETURN
40700: C=C(N-1)*C(N
-1)-C(N)*C(N
-2)
40710: IF C=0 THEN C
=1: IF (R=0)
AND (S=0)
THEN R=-1: S=
-1
40740: DR=(-B(N)*C(
N-1)-(-B(N+1
) *C(N-2)))/C
40750: DS=(-B(N+1)*
C(N-1)-(-B(N
) *C(N)))/C
40760: R2=R1: S2=S1:
R1=INT (R*E)
/E: S1=INT (S
*E)/E: R=R+DR
: S=S+DS:
RETURN
40800: F=F+2: Y(F)=(
J-W)/(2*A): Y
(F-1)=-B/(2*
A): RETURN
40900: G=G+2: X(G)=(
-B+JW)/(2*A)
: X(G-1)=(-B-
JW)/(2*A):
RETURN

Im
wrtls

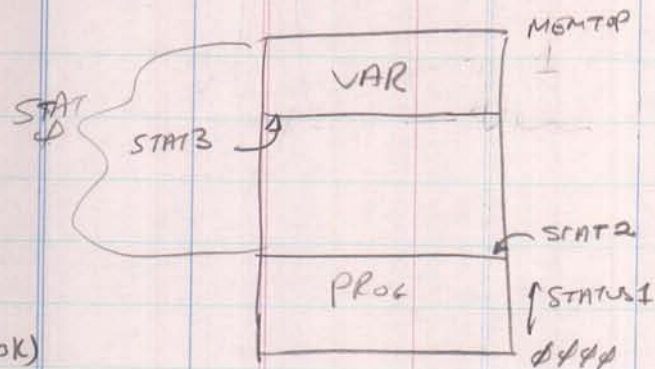
Re
wrtls

1st April 1987.

16K Ram Pack \$4444 - \$3FFF

2K Built in Ram \$4444 - \$47FF

Zilch \$4844 - \$6FFF (10K)



1500A:	System Ram	16K
	Memory RAM	8.5K
	System	1.9K
	Buffer	80 Bytes
	Stack	196 Bytes
	Machine Lang.	1023 (7C01-7FFF)
→	User Area:	6.6K
	Fixed var.	624 Bytes
	Basic	5946 Bytes
	Reserve	182 Bytes

2361

Reserve	:	182	↑
Basic	:	5946	↓
<u>Fixed var</u>	:	<u>624</u>	
User Area		6758	(6.6K)

???		647	
Buffer:		80	
Stack:		196	
M.L.		1023	
System:		<u>1946</u>	(1.9K)
Memory		<u>8704</u>	(8.5K)

SCREEN(I/O) \$7000 - \$71FF

WRAP: \$7200 - \$73FF

\$7400 - \$75FF

\$7600 - \$77FF

System + Fixed variables: \$7800 - \$7FFF

Keyboard buffer \$7FB0 - \$7FFF (20 Bytes)

Input is parsed first and then put into
this buffer, i.e. all BASIC words
are tokenised.

\$7000 - \$704D - SCREEN

\$704E - \$704F - FLAGS (SCREEN)

\$7050 - \$70FF - E\$ - O\$ →

\$7100 - \$714D - SCREEN

\$714E - \$714F - [UNUSED?]

\$7150 - \$71FF - P\$ - Z\$ →

\$7200 - \$73FF

\$7400 - \$75FF

\$7600 - \$77FF

} - WRAP.

A\$	30912 - 30927	\$78C0 - \$78CF
B\$	30928 - 30943	\$78D0
C\$	30944 - 30959	\$78E0
D\$	30960 - 30975	\$78F0 - \$78FF
E\$	28752 - 28767	\$7050 - \$705F
F\$	28768 - 28783	6
G\$	28784 - 28799	7
H\$	28800 - 28815	8
I\$	28816 - 28831	9
J\$	28832 - 28847	A
K\$	28848 - 28863	B
L\$	28864 - 28879	C
M\$	28880 - 28895	D
N\$	28896 - 28911	E
O\$	28912 - 28927	\$70F0 - \$70FF
P\$	29008 - 29023	\$7150 - \$715F
Q\$	29024 - 29039	6
R\$	29040 - 29055	7
S\$	29056 - 29071	8
T\$	29072 - 29087	9
U\$	29088 - 29103	A
V\$	29104 - 29119	B
W\$	29120 - 29135	C
X\$	29136 - 29151	D
Y\$	29152 - 29167	E
Z\$	29168 - 29183	\$71F0 - \$71FF

Rom Dump

```

1:CSIZE 2:COLOR
2:LLIST :LF 2:
COLOR 3:LPRINT
"PC-1500 RAM":
LPRINT "$0000-
$4FFF":COLOR 1
:CSIZE 1
10:FOR A=0TO &4FF
STEP 8:M=A
15:D=M:GOSUB 1500
:LPRINT " - ";
16:A$=""
20:FOR O=0TO 7:MM
=M+O
30:P=PEEK (MM):D=
P:GOSUB 1500
35:A$=A$+CHR$ (P+
42*(P=0))
40:NEXT O:LPRINT
" ";A$
50:NEXT A
60:BEEP 1
1499:END
1500:REM D -> HE
X
1510:WAIT 0:IF D<
257LET H1=0:
LET H2=0:
GOTO 1540
1520:H=INT (D/409
6):H1=H*4096
:GOSUB 1560
1530:H=INT ((D-H1
)/256):H2=H*
256:GOSUB 15
60
1540:H=INT ((D-H1
-H2)/16):H3=
H*16:GOSUB 1
560
1550:H=D-H1-H2-H3
1560:LPRINT CHR$
(48+H+7*(H>9
));:RETURN
1999:END

```

PC-1500 RAM
\$0000-\$4FFF.

```
00 - 0071E22CE220E000 *q, + *
00 - 0000000000000000 *****
10 - 0000000000000000 *****
10 - 0000000000000000 *****
20 - 0000000000000000 *****
20 - 0000000000000000 *****
30 - 0000000000000000 *****
30 - 0000000000000000 *****
40 - 0000000000000000 *****
40 - 0000000000000000 *****
40 - 0000000000000000 *****
50 - 0000000000000000 *****
50 - 0000000000000000 *****
50 - 0000000000000000 *****
60 - 0000000000000000 *****
60 - 0000000000000000 *****
70 - 0000000000000000 *****
70 - 0000000000000000 *****
80 - 0000000000000000 *****
80 - 0000000000000000 *****
90 - 0000000000000000 *****
90 - 0000000000000000 *****
A0 - 0000000000000000 *****
A0 - 0000000000000000 *****
B0 - 0000000000000000 *****
B0 - 0000000000000000 *****
C0 - 0000000000000000 *****
C0 - 334004F104313440 30 140
D0 - 05F10431354000F1 150
D0 - 0431364011F10432 100 2
E0 - 314012F104323240 10 220
E0 - 13F10432324014F1 230
F0 - 0432344015F10432 240 2
F0 - 354016F104323640 50 260
G0 - 000130E000323AF0 * j 2:
0100 - 05323AF0003AF000 2:
0110 - 323AF000333AF000 2: 3:
0110 - 2250432031353030 *PC-1500
0120 - 20524140223AF000 RAM*:
0120 - 2224303030302024 *0000-0
0130 - 34464646223AF000 4FFF*:
0130 - 3130E00031000000 1: 1
0140 - 13F105413030F101 A=0
0140 - 26344646F1003030 04FF 8:
0150 - 403041000000F1444 11=0
0150 - 304030F104313530 =M: 150
0160 - 303AF00032202020 0: " -
0160 - 2230000010004124 "j
0170 - 30222000014100F1 =P*
0170 - 054F3030F1013730 D=0 7:
0180 - 40403040204F0000 111=H+0
0180 - 1E145030F10F2040 P=0 (M
0190 - 4023044305030AF1 11: D=P:
0190 - 0431353030000023 1500
01A0 - 15412430412420F1 A=0A=+
01A0 - 6320502034322A20 0(P+42*
01B0 - 5030302020000020 P=0))
01B0 - 00F1004F30F00022 "j00
01C0 - 2022004124000032 "j00
01C0 - 04F10041000000304 A
01D0 - F10231000000000F1 1
01D0 - 0E00000000CF10020
01E0 - 4420203E20404550 D -> HEX
01E0 - 0005E20F1033030
01F0 - F106443C323537F1 D(257
01F0 - 004031303030F100 H1=0:
0200 - 0032303030F10231 H2=0: 1
0200 - 35343000005F01E40 340
0210 - 30F17120442F3430 = q(D/40
0210 - 3936230440313040 36): H1=H
0220 - 2A3430303030F104 *4050:
0220 - 3135363000005FA21 1500
0230 - 0030F17120204420 H= q((D-
0230 - 0031292F32353629 H1)/256)
0240 - 3A402304020A3235 : H2=H*25
0240 - 3630F10431353630 6: 1500
0250 - 000004224020F171
0250 - 2020442040312040 ((D-H1-H
0260 - 22252F3136293040 2)/16): H
0260 - 3304020313030F1 3=H*16:
0270 - 043135363000000E 1500
0270 - 0040304420403120
0280 - 00322040303000010 H2=H3
0280 - 17F000F103263430 0(40
0290 - 2040203720204030 +H+7*(H)
0290 - 392923030AF10000 0): j:
02A0 - 07CF03F10E000000
02A0 - 0AF1002050454540 PEEK
02B0 - 45520000C211F001 ER
02B0 - 2253544152542022 *START *
02C0 - 3040304330300000 j1: C=0
02C0 - CC32412430222230 2000=P*:
02D0 - F105433030F10131 I=0 1
02D0 - 3530405030402040 5: 11P=H+1
02E0 - 3AF1043331333030 : 3130:
02E0 - 412404124204224 A=0A=+00
02F0 - 3AF1004030F10231 : T: 3
02F0 - 3131300000001243 110
0300 - 2430F15C30AF10040 0= W: C
0300 - 24303E2222F10040 0( )P C
0310 - 30F1004324000000 = C$
0310 - 00F10043303031F1
0320 - 5223303130000000 3010
0320 - 0CF1004330303030F0 C=42
0330 - 0030F10E000000F00C :
0330 - F100433030F10233 C=0 3
0340 - 303930000000F00F1 000
0340 - 5643303132F10233 C=12 3
0350 - 31303000000000F1 100
0350 - 52333033300000C12 3030
0360 - 2940304020313040 j11=H-1: H
0360 - 50304030F1043331 P=H: 31
0370 - 3330304124304224 30: 00=00
0370 - 20F1004030F10231 + x(00: 1
0380 - 35230AF102333131 31: 311
0380 - 30000C1C25403040 0
0390 - 2031304050304020 +11P=H+
0390 - 313530F104333133 15: 313
03A0 - 3030412430F10220 0: 00=0 (
03A0 - 4124203135202042 00, 15)+0
03B0 - 24000C260FF10330 $
03B0 - 3AF0074124302220 : 00: j
03C0 - 2200400000C3000F1 "j11
03C0 - 52233033300000C30 3030
03D0 - 0E503020F10F4050 P=0 (01P
03D0 - 29F100313237000C ) P127
03E0 - 4410422430F10320 D 00=0 (
03E0 - 5020205030333120 P*(P>31)
03F0 - 2034322020503033 +42*(P<3
03F0 - 32292930F10000FF 2)):
0400 - FFFFFFFFFFFFFFFF
```

PC-1500 ROM \$C000-\$FFFF

C000 - 55FD2A65FDA82A68 U *c kh
C001 - 788461042E3AA57A x a . z
C002 - 07AE788524AE7884 x * x
C003 - 04AE78833AC4AFFF x
C004 - C056C093C0A2C0E2 U
C005 - C10EC128C1308000 (0**
C006 - C1630000000C1R2 c***
C007 - C1C2C1D3C1ECC280
C008 - 8008C25FC288C2F6 **
C009 - C32AC23FC2478000 * 7 5**
C010 - 000000000415245 *** ARE
C011 - 4144F180C0840A341 AD a
C012 - 4E44F150C0830A341 ND P a
C013 - 4253F120F557A341 AS P a
C014 - 544EF125F496A341 TN u a
C015 - 524EF123F496A341 SN a a
C016 - 4353F124F492A341 CS t a
C017 - 5343F160D3D00441 SC a
C018 - 52554EF181C68484 RUN
C019 - 42454550F162E5C1 REEP
C020 - 04434F4E54F183C8 CONT
C021 - C706425552534F52 CURSOR
C022 - F084E846C5434C45 F CLE
C023 - 4152F162C05FC343 AR C
C024 - 4C53F080E005C343 LS e C
C025 - 4F53F12EF351A443 OS ~ C
C026 - 485224F163D3B1A4 HR4 o
C027 - 43414C4CF18AC083 CALL o
C028 - 0344494DF188C988 DIM
C029 - C644454752445F1 DEGREE
C030 - 80C0697C3444547F1 DEG
C031 - 65F531A3444552F1 e J DMS
C032 - 66F5640444415441 f d DATA
C033 - F180C60482454E44 END
C034 - F180C50DA3455850
C035 - F178F1C9A5455252 * ERR
C036 - 4F52F184C083B346 OR F
C037 - 4F52F105C7118442 OR G
C038 - 4F544FF132C515C5 OTO
C039 - 474F535542F134C6 GOSUB
C040 - 4E06475852494E54 N GPRINT
C041 - F03FE7A0C7474355 GCU
C042 - 52534F52F093E83E RSOR >
C043 - C447524144F186C6 GRAD
C044 - A8D5434E585554F8 INPUT
C045 - 91C8FAC24346F136 IF
C046 - C584A3494E54F171 INT q
C047 - F58E98494E484553 INKEY
C048 - 24F15C09A044049 * \$ LI
C049 - 5254F090C986C34C ST n L1
C050 - 4F47F177F165024C OS w e L
C051 - 4EF176F161A24C45 M u a LE
C052 - 54F198C458A34C45 T X LE
C053 - 4EF164D3D0854C45 N d LE
C054 - 465424F17A09F3C4 FT4 z
C055 - 4C4F4248F185C968 LOCK h
C056 - 034D454DF158DA5D MEM X J
C057 - C44D434424F178D3 MID#
C058 - F3044E455854F19A NEXT
C059 - C705A34E4F54F160 NOT m
C060 - 599EA34E4557F198 Y NEW
C061 - C88A524F4EF19C05 ON
C062 - E0A24F52F151C089 OR q
C063 - A34F584EF19DE452 OPN u

PC-1500 ROM \$C000-\$FFFF

E000 - FD8E8508FDC0EFD00 *
E001 - 6AC08822FDC16AC0 J
E002 - 8882FDC088226A0F h J
E003 - 8882FDC088226A0F b *
E004 - F0ACF080F0AEDC00
E005 - F0ACF080F0AEDC00 *
E006 - F0ACF080F0AEDC00 HzJ
E007 - 6A0F85A002880105 J
E008 - 07448308D08827D5 D
E009 - 0508D088E108541A5 * a
E010 - 704E8343AE7884F53 u4 C uJ
E011 - 7068088502407A40 xkF HzJ
E012 - 2041858041434640 a *ACFN
E013 - 0183D0A0704F8E78 xD x
E014 - 5DFFE3788E18568 J
E015 - AE79D18EF585C05C y *
E016 - 48294AD26A0CC08A HzJ J
E017 - 8EE153587A5A1485 SXzZ
E018 - FF6A045388834888 J S H*
E019 - 4A08052A855A8E87 J* * Z
E020 - 892285A58E87891C *
E021 - 240E5A1315D08182 * Z
E022 - 041EFD404C709128 BLP
E023 - 5A14045315D08182 Z S E
E024 - 041E8E295A134582 JZ E
E025 - 55891C55D091155A U U Z
E026 - 1015D09123450083 BE
E027 - 02DF88845185D933 q
E028 - 2F458251F59E3555 /E q 5U
E029 - D031319E3848788A ! ; HzJ
E030 - 645460457876824 ATJ u
E031 - EB7A288443888885 * C
E032 - 08C05A8E788E1C0 * Z
E033 - 8E8115FDC8F0884A J
E034 - 0A08E16A188A20E h J
E035 - F08AF08ACD8C9315
E036 - F08AF08ACD8C9315
E037 - 0A08FDC1F081487A Hz
E038 - 4A20458F01888D45 J E
E039 - 830A058887F02A0D *
E040 - 1A8AE2438AC9E4A5 C
E041 - 7A3888A57A318A0D x8 x1
E042 - 4E9EC8FD3848E1A8 M H J
E043 - 6858F05A878A8845 hX Z J E
E044 - F0J548886F01A3A *
E045 - 23C8D7888888888F *
E046 - 08FDC8F088F088F *
E047 - A88579D8F0C8FDCD y
E048 - F088D1888F08F08F e
E049 - 08F0F08F088888F *
E050 - A5D88F08F088888F *
E051 - F0AEDC088DFF882E *
E052 - 8848884A88F08885 H J*
E053 - FDC8818D8558789
E054 - 8888E16A89A138E h J J
E055 - 55D8AFD08888F4C U
E056 - 5881881A85EF8288
E057 - 143E26A89E2D0FED *
E058 - F088818815F0E9F8
E059 - 08F0F0A58888F0A3
E060 - 8888888888888888
E061 - 9E4A0579D0A875589 J y U
E062 - 21F0A5F088F0A8F8 I
E063 - 0A8888881568E2A8 h J
E064 - 12A579D888A579D0 y y
E065 - 8A85888181A8F0A8
E066 - F05EFD88888881FD ^
E067 - E8F08881FD888A79
E068 - 08C0A8F02A0F01A0F * y
E069 - 8A8F08A8F0C88588 *
E070 - F0C8E88888ED79D0 y
E071 - 818881A89A8E788E
E072 - 038E88A579D48755 y U
E073 - 8880E9788EFD4878 * H
E074 - ED788E4889854A89 q J
E075 - 8568414A8A85FE41 AJ A
E076 - 851D414185884168 AA Ah
E077 - F8CDA688CDB8EE418
E078 - 88528EE42C834D38 R , N8
E079 - ED788E81882EED78

PC-1500 ROM \$C000-\$FFFF

FF00 - DCB7DCB6DCC6D865 e
FF01 - DD03DE5DE97D461 ^ a
FF02 - DD2DDF93DFFADFF5 -
FF03 - DF88D2E6FA89F82A *
FF04 - DF22DF63D8AFD882 r o
FF05 - D881D83EDC8A06C8 >
FF06 - DC16D871DF23D88F q #
FF07 - C8F0CFF8F8A74F830 t
FF08 - C481C588A7A0C888 X z
FF09 - DCF8D0CFD0CE3DCE0
FF10 - DA71F663F788F73D q o =
FF11 - F884E573F61BF7A2 s
FF12 - F084F888F78CF783
FF13 - F715F88FF6F8F888
FF14 - F747F7CF725F75F G u
FF15 - F72FF2DFF6E6F81A /
FF16 - F707F229F88E848) * #
FF17 - EDF6E058EE1FED81 t
FF18 - EDABED88EC5CEA78 * * x
FF19 - EC74ECE8E87E4A8 t
FF20 - E234E558888E451 4 U Q
FF21 - 88888888E88C8891
FF22 - 88348837888A8880
FF23 - 88A8F783E487E4A8 o
FF24 - DD88D0C4D0C5D012
FF25 - DC8C881D0C80450 J
FF26 - DCF8D01ADE38D01
FF27 - DF3888E8C8D8F i
FF28 - CD88C488CDB8F780 *
FF29 - F661F79CF75F7FC a u
FF30 - EF8AEE71D88C0D85 q
FF31 - E171E22CE228E888 q , + *

PRINTER ROM \$A000-\$BFFF

A000 -C002511203140152 Q R
 A008 -02F2015602765241 U vRA
 A010 -6412C41279424959 d yRIY
 A018 -625949427910F608 BYIRy
 A020 -00010500137F0894
 A028 -35990A4A0A00000
 A030 -000FC4C0A0300DFE6
 A038 -E3F5FD071215191C
 A040 -2530363D43474052 %06=CGMR
 A048 -5C01676D7275797E %03=CGMR
 A050 -0403000000000000
 A058 -030AC1C7C0D400E0
 A060 -E1E2E3F0F7FF050D
 A068 -141A1E2520203520 %+-5;
 A070 -41474E525C062000 A6NRVbha
 A078 -7679000485000211 vU
 A080 -4C24514171613001 L0Q0q0c0
 A088 -7141D1045C510179 qA FQ y
 A090 -607101C000035052 kq ZN
 A098 -C00140520A025021 JR UI
 A0A0 -207C14EC104410F4 J D
 A0A8 -3149520171C113C4 IIR0q
 A0B0 -0141510171C111CC A00q
 A0B8 -117942040204C001 yB
 A0C0 -420156E94C518209 BaU LQ I
 A0C8 -35C4117942018242 5 yB B
 A0D0 -0102E903560071C4 U0q
 A0D8 -117942020352C413 yB R
 A0E0 -A2A2A2A2A2F94C52 B LR
 A0E8 -E401420102420102 B B
 A0F0 -01796071F9117942 y1q yB
 A0F8 -04020102C0004151 AQ

PRINTER ROM \$A000-\$BFFF

0000 - 5502404750000000 U 16P
 0008 - 000000A540014052 K JR
 0010 - F414720A00001473 r s
 0018 - 7949537379020CFF y150y
 0020 - 0000000002560000 U
 0028 - 0000000000000000 J
 0030 - 0000000000000001
 0038 - 0000000000000000
 0040 - 0000000200C70001
 0048 - 0000000000000000
 0050 - 0000000005434F4C COL
 0058 - 4F51F0050100E113 OR j C
 0060 - 534950450000100 SIZE
 0068 - F54752415040E001 GRAPH
 0070 - A0D300474C435552 GLCUR
 0078 - 534F52E0020191F7 SOR
 0080 - 4C435552534F52E6 LCURSOR
 0088 - 030201E24C46F006 LF
 0090 - 0104E44C494E45F0 LINE
 0098 - 070222E54C4C4953 " LLI5
 00A0 - 54F0000754E64C50 T T LP
 00A8 - 52494E54F00002EC RINT
 00B0 - F5524C494E45F000 RLIN
 00B8 - 0224E0524F544154 # ROTAT
 00C0 - 45E0000150F5534F E Z SO
 00C8 - 52474EE0040153F3 RGN S
 00D0 - 544142F00000201E4 TAB
 00D8 - 54455354F0000001 TEST
 00E0 - E45455854E0000C TEXT
 00E8 - 06F0300579F10300 B y
 00F0 - 0E0300000110004E hN
 00F8 - E00E0000A579F000 y

Circuit Analysis

AF	Active filter
PF	Passive filter
PLL	PL Loop Analysis
SP	Parallel $\leftrightarrow$ Serial
SC	Smith chart
SD	Signal detection
CONV	dB / Power ratio / voltage ratio / current ratio

Math pack

PF	Prime factor
GF	Gaussian function
PM	Polynomial multiplication
HYP	Hyperbolic functions
MAT	Matrixes
MIN	min/max
ODE	Differential equation
RT	Roots of function
LS	Linear system
NLS	Complex systems
INT	Integration
CB	Interpolation

CIRCUIT ANALYSIS \$0000-\$3FFF

```

00 - 550000C5400000FF U. 0.
01 - 0000000000000000 ...
02 - 0000000000000000 ...
03 - 0000000000000000 ...
04 - 00002041462E2050 ... AF, F
05 - 162E20504C2053 F. PLL, S
06 - 502E2053432E2053 P. SC, S
07 - 442E000020434F4E D. ... CON
08 - 5600000000000000 U. ...
09 - 0000000000000000 ...
10 - 00000000000011F1 ...
11 - A4224146224012F1 "AF"0
12 - A4225046224013F1 "PF"0
13 - A422504C224014F1 "PLL"0
14 - F1A4225350224015 "SP"0
15 - F1A4225343224016 "SC"0
16 - F1A4225344224009 "SD"0
17 - F1A422434F4E5622 "CONU"
18 - 4000000000000000 G. ...
19 - 0000000000000000 ...
20 - 0000000000000000 ...
21 - 0000000000000000 ...
22 - 0000000000000000 ...
23 - 0000000000000000 ...
24 - 0000000000000000 ...
25 - 0000000000000000 ...
26 - 0000000000000000 ...
27 - 0000000000000000 ...
28 - F0003A5A2430F120 i 20
29 - 204A24208292CF1 (J0),
30 - 6220F172204A2420 b( r(J0),
31 - 30292C3229292C31 0), 2), 1
32 - 2000000429F00430 )
33 - 3AF03F71A204A24 : z(J0)
34 - 2030292CF164204A (0), d(J
35 - 2420302929203229 $(0)-2)
36 - 303A4A303131303A j: j=10:
37 - F152313530000006 150
38 - 23F00420F16220F1 # ( b(
39 - 72204A242030292C r(J0),
40 - 32292920312930F0 2))-1):

```

CIRCUIT ANALYSIS \$0000-\$3FFF

```

3F00 - 303A4A3F3D353630 0: 10=500
3F01 - 30303A404E3D3435 00: H=45
3F10 - 3430303AF1004A24 400: J0
3F11 - 2030292A323500D7 (0)*25
3F20 - 0003F1: 3000D73C30
3F21 - 4A24203029202244 J0(0)=0
3F30 - 7261722047226170 raw Grop
3F31 - 6620592F4E293F31 h(Y/N)?1
3F40 - 32223AF194393030 2": 90:
3F41 - F196592430224E22 Y0="N"
3F50 - F192353530303000 55000
3F51 - D74103F19900000C A
3F60 - 394024203293022 3J0(0)=
3F61 - 57017665200C6566 Have 1an
3F70 - 20592F4E293F3130 (Y/N)?10
3F71 - 223AF194393030F1 i 90:
3F80 - 96592430224E22F1 Y0="N"
3F81 - 9040393032303030 K9=2000
3F90 - 303AF19235353030 0: 5500
3F91 - 30000000010F00722 0
3FA0 - 5761200C65662930 Ma(1an)=
3FA1 - 2230303022202230 "iXj" "j
3FB0 - 30AF0915000000000 N
3FB1 - F0003AF102323031 : 201
3FC0 - 3730000000010F103 70
3FC1 - 30AF09222494E5641 "INU0
3FD0 - 4C43442044415441 LID DATA
3FD1 - 223AF103303AF199 "i 0:
3FE0 - 00FFFFFFFFFFFFFFF
3FE1 - FFFFFFFFFFFFFFFF
3FF0 - FFFFFFFFFFFFFFFF
3FF1 - FFFFFFFFFFFFFFFF
4000 - 00013022202230E6 . 5"=":
4001 - 00323AF0053330F0 2: 3:
4010 - 06323AF009224345 2: "C1
4011 - 524355405420414E RCUIT AN

```

MATHPACK \$0000-\$3FFF

```

00 - 550000C5400000FF U. 0.
01 - 0000000000000000 ...
02 - 0000000000000000 ...
03 - 0000000000000000 ...
04 - 00002041462E2050 ... PF, G
05 - 162E20504C2053 F. PH, H
06 - 502E2053432E2053 YF, PH, H
07 - 442E000020434F4E RT, DDE
08 - 5600000000000000 RT, LS
09 - 0000000000000000 NLS, INT
10 - 00000000000011F1 CS.
11 - A4224146224012F1 "PF"0
12 - A4225046224013F1 "GF"0
13 - A422504C224014F1 "PH"0
14 - F1A4225350224015 "HYF"0
15 - F1A4225343224016 "HAT"0
16 - F1A4225344224009 "MIN"0
17 - F1A422434F4E5622 "ODE"
18 - 4000000000000000 "RT"
19 - 224000AF104225254 "LS"
20 - 224000AF104224C53 "NL"
21 - 5322400DF1042249 5"0
22 - 4E5422400EF10422 NT"0
23 - 4353224000000000 CS"0
24 - 0000000000000000
25 - F196592430225922 P0="Y"
26 - F0003100000003F1 i
27 - 95000000422F00030
28 - 502430F170204124 200 (0#
29 - 2030292CF16220F1 (0), b(
30 - 7261722047226170 r(0#(0),
31 - 3229292C31290000 2)), 1)
32 - 0626F0043030AF057 0, 0:
33 - F17A204124203029 z(0#(0)
34 - 2CF1642041242030 , d(0#(0)
35 - 29292D3229303041 ))-2); 0
36 - 30303AF192313000 0# 10
37 - 000021F00420F162 . i ( b
38 - 20F1722041242030 ( r(0#(0)
39 - 292C322929203129 ), 2))-1)
40 - 30AF092220223030 : " "i:
41 - 413030000000A1355 00#6
42 - 2430F15C30AF19659 00# 7: Y
43 - 24302222F10EF102 00#FF

```

MATHPACK \$0000-\$3FFF

```

3F00 - 10F0063130AF00542 i: 0
3F01 - 2430AF0063130AF199 #: 1:
3F10 - 00C3000041243022
3F11 - 223AF00630AF10330 "i 0
3F20 - 20AF19C41F1523530 i 0 50
3F21 - 3130302C35303220 100, 5020
3F30 - 302C35303230302C 0, 50300,
3F31 - 35303430302C3530 50400, 50
3F40 - 35303000C306410F1 500
3F41 - 0330AF0034130AF00F i 0:
3F50 - 412430AF00630AF103 0# 1:
3F51 - 3030AF0053AF19900 0: 1:
3F60 - C3041CF007225641 "U0
3F61 - 40554520544F4F20 LUE 100
3F70 - 40415247452230AF LARGE"i
3F71 - 92353030323000C4 50020
3F80 - 1010F00922434E56 "INU
3F81 - 4140434420434E54 ALID ENT
3F90 - 52592230AF1923530 RY"i 50
3F91 - 30323000C47C10F0 020
3FA0 - 57224045404F05259 "MEMORY
3FA1 - 204655404C2220F1 FULL"i
3FB0 - 22353030323000C4 50020
3FB1 - E01CF00922444956 "DIU
3FC0 - 4944454420425920 IDEO RY
3FC1 - 5045524F2230AF192 ZERO"i
3FD0 - 353030323000C544 50020
3FD1 - 1CF0072240415452 "MATR
3FE0 - 49562053494E4755 IX, SINGU
3FE1 - 4041522230AF19235 LAR"i 5
3FF0 - 3030323000FFFFFFFF 0020
3FF1 - FFFFFFFFFFFFFFFF
4000 - 00012522302230E6 . 5"=":
4001 - 00323AF0053330F0 2: 3:
4010 - 06323AF009224041 2: "M0
4011 - 5446504142402230 MHPACK"i

```

COMBSORT A() SIZE
A(0..SIZE-1)

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BYTE APR 91 P 317.

Dim A(SIZE-1)

```

10 GAP = SIZE/2
+ 20 GAP = INT(GAP/1.3)
30 IF GAP = 0 LET GAP = 1
40 SWITCH = 0
50 FOR I = 0 TO SIZE - GAP - 1
60 IF S = I + GAP
70 IF A(I) > A(S) LET TEMP = A(I): A(I) = A(S): A(S) = TEMP: SWITCH = SWITCH + 1
80 NEXT I
90 IF (SWITCH = 0) OR (GAP < 1) GOTO 20

```

PERFORMANCE SHARP

	COMB	BUBBLE
10	3	5
20	8	11
30	13	37
40	61	146.