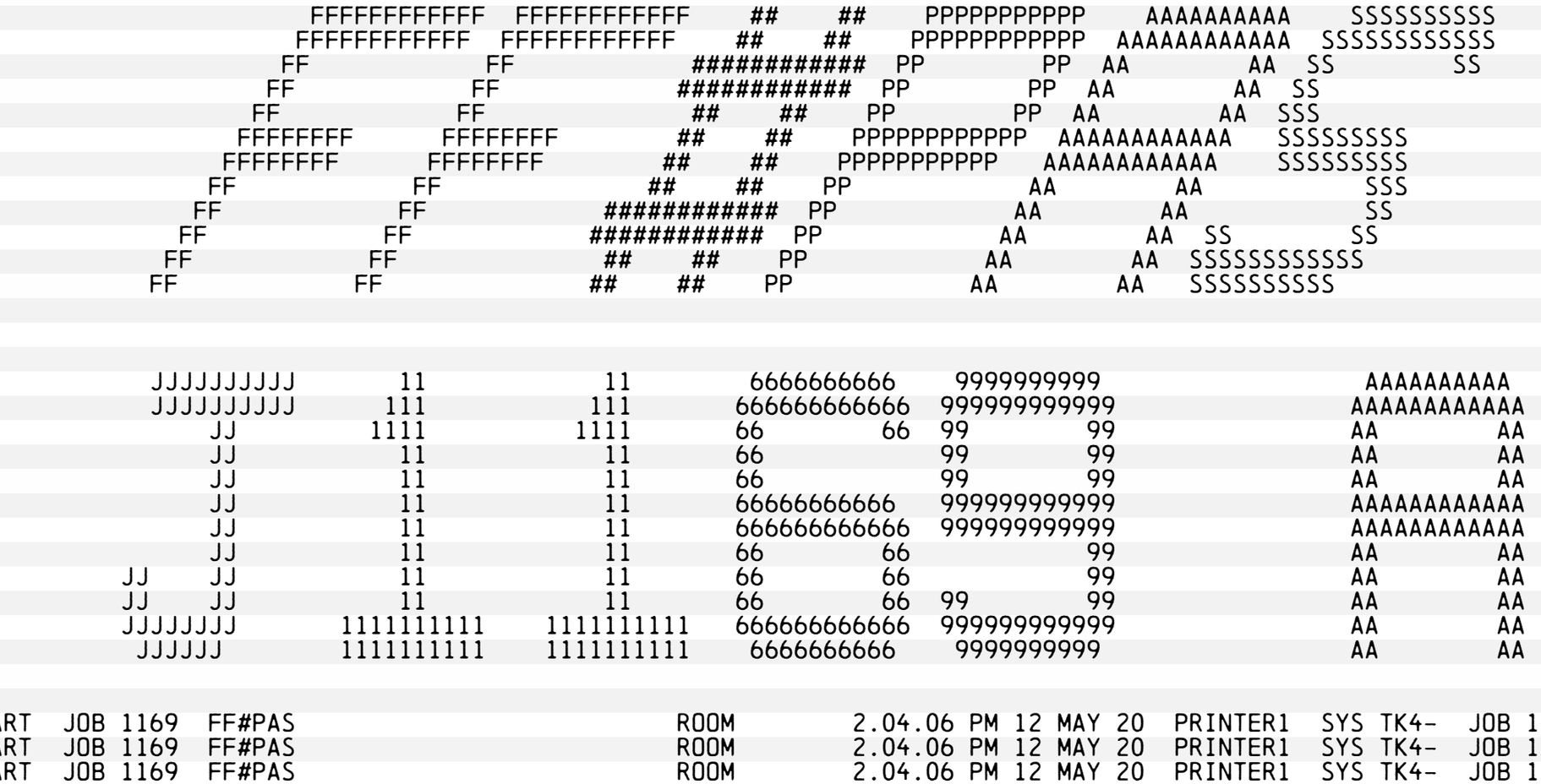
FFFFFFFFFFFF FFFFFFFFFFFF ## ## PPPPPPPPPP AAAAAAAAAA SSSSSSSSS
FFFFFFFFFFFF FFFFFFFFFFFF ## ## PPPPPPPPPPP AAAAAAAAAAAA SSSSSSSSSS
FF FF ############ PP PP AA AA SS SS
FF FF ############ PP PP AA AA SS
FF FF ## ## PP PP AA AA SSS
FFFFFFFF FFFFFFFF ## ## PPPPPPPPPPP AAAAAAAAAAAA SSSSSSSS
FFFFFFFF FFFFFFFF ## ## PPPPPPPPPP AAAAAAAAAAAA SSSSSSSS
FF FF ## ## PP AA AA SSS
FF FF ############ PP AA AA SS
FF FF ############ PP AA AA SS SS
FF FF ## ## PP AA AA SSSSSSSSSSS
FF FF ## ## PP AA AA SSSSSSSSS
JJJJJJJJJJ 11 11 6666666666 9999999999 AAAAAAAAAA
JJJJJJJJJJ 111 111 666666666666 999999999999 AAAAAAAAAAAA
JJ 1111 1111 66 66 99 99 AA AA
JJ 11 11 66 99 99 AA AA
JJ 11 11 66 99 99 AA AA
JJ 11 11 66666666666 999999999999 AAAAAAAAAAAA
JJ 11 11 666666666666 999999999999 AAAAAAAAAAAA
JJ 11 11 66 66 99 AA AA
JJ JJ 11 11 66 66 99 AA AA
JJ JJ 11 11 66 66 99 99 AA AA
JJJJJJJJ 1111111111 1111111111 666666666666 999999999999 AA AA
JJJJJJ 1111111111 1111111111 6666666666 9999999999 AA AA

J E S 2 J O B L O G

```
14.04.00 JOB 1169  $HASP373 FF#PAS   STARTED - INIT  1 - CLASS A - SYS TK4-
14.04.00 JOB 1169  IEF403I FF#PAS - STARTED - TIME=14.04.00
14.04.01 JOB 1169  IEFACTRT - STEPNAME  PROCSTEP  PROGRAM   RETCODE
14.04.01 JOB 1169  FF#PAS     COMPILE             PASCAL    RC= 0000
14.04.01 JOB 1169  FF#PAS     POSTPROC            ASMPCODE  RC= 0000
14.04.06 JOB 1169  FF#PAS     GO                  LOADER    RC= 0000
14.04.06 JOB 1169  IEF404I FF#PAS - ENDED - TIME=14.04.06
14.04.06 JOB 1169  $HASP395 FF#PAS   ENDED

------ JES2 JOB STATISTICS ------

 12 MAY 20 JOB EXECUTION DATE

          5 CARDS READ

        957 SYSOUT PRINT RECORDS

          0 SYSOUT PUNCH RECORDS

       0.09 MINUTES EXECUTION TIME
```

```
 1      //FF#PAS JOB CLASS=A,MSGCLASS=A,MSGLEVEL=(1,1),NOTIFY=HERC01,            JOB 1169
        //             USER=HERC01,PASSWORD=         GENERATED BY IKJEFF10
 2      // EXEC PASCG,PARM.COMPILE='D-,K+',PARM.GO=MAP
 3      XXPASCG  PROC  GOTIME=299,GOPARM=,GOREG=2048K,DUMP='DUMMY,',            00010000
        XX             SOUT='*',WORK=VIO,OPT='M+' 1..72 MARGINS                 00020000
        ***                                                                     00030000
        ***                                                                     00040000
 4      XXCOMPILE EXEC PGM=PASCAL,REGION=8192K,PARM='&OPT'                      00050000
 5      XXSTEPLIB  DD  DSN=PASCAL.PASLIB,DISP=SHR                               00060000
 6      XXINPUT    DD  DDNAME=SYSIN                                             00070000
 7      XXPRD      DD  DSN=PASCAL.PASOBJ(PASMSG),DISP=SHR                       00080000
 8      XXOUTPUT   DD  SYSOUT=&SOUT                                             00090000
 9      XXPRR      DD  DSN=&&PCODE,UNIT=&WORK,DCB=RECFM=VB,                     00100000
        XX             SPACE=(TRK,(20,5),RLSE),DISP=(,PASS)                     00110000
10      XXQRR      DD  DSN=&&TABLES,UNIT=&WORK,DCB=RECFM=VB,                    00120000
        XX             SPACE=(TRK,(5,2),RLSE),DISP=(,PASS)                      00130000
        ***                                                                     00140000
        ***                                                                     00150000
11      //SYSIN DD DSN=FATT.TEST.SOURCE(FF#PAS),DISP=SHR
12      XXPOSTPROC EXEC PGM=ASMPCODE,COND=(0,LT,COMPILE),REGION=2048K           00160000
13      XXSTEPLIB  DD  DSN=PASCAL.PASLIB,DISP=SHR                               00170000
14      XXINPUT    DD  DSN=*.COMPILE.PRR,DISP=(OLD,DELETE)                      00180000
15      XXPRD      DD  DSN=*.COMPILE.QRR,DISP=(OLD,PASS)                        00190000
16      XXOUTPUT   DD  SYSOUT=&SOUT                                             00200000
17      XXPRR      DD  DSN=&&OBJECT,UNIT=&WORK,DCB=RECFM=FB,                    00210000
        XX             SPACE=(TRK,(10,5),RLSE),DISP=(,PASS)                     00220000
        ***                                                                     00230000
        ***                                                                     00240000
18      XXGO     EXEC  PGM=LOADER,COND=((0,LT,COMPILE),(0,LT,POSTPROC)),       00250000
        XX             PARM='//TIME=&GOTIME,&GOPARM',REGION=&GOREG               00260000
19      XXSTEPLIB  DD  DSN=PASCAL.PASLIB,DISP=SHR   (NEEDED FOR K+ ONLY)        00270000
20      XXSYSLIN   DD  DSN=*.POSTPROC.PRR,DISP=(OLD,DELETE)                     00280000
21      XXSYSLOUT  DD  SYSOUT=&SOUT                                             00290000
22      XXSYSLIB   DD  DISP=SHR,DSN=PASCAL.PASLIB                               00300000
23      XX         DD  DISP=SHR,DSN=SYS1.FORTLIB                                00310000
24      XXINPUT    DD  DDNAME=SYSIN                                             00320000
25      XXPRD      DD  DUMMY                                                    00330000
26      XXQRD      DD  DSN=*.COMPILE.QRR,DISP=(OLD,DELETE)                      00340000
27      XXFT06F001 DD  SYSOUT=&SOUT                                             00350000
28      XXOUTPUT   DD  SYSOUT=&SOUT                                             00360000
29      XXQRR      DD  UNIT=&WORK,SPACE=(TRK,(2,2))                             00370000
30      XXSYSUDUMP DD  &DUMP.SYSOUT=&SOUT                                       00380000
        ***                                                                     00390000
31      //GO.SYSIN DD DSN=FATT.TEST.DATA(FF),DISP=SHR
```

```
 STMT NO. MESSAGE
-
     4      IEF653I SUBSTITUTION JCL - PGM=PASCAL,REGION=8192K,PARM='M+'
     8      IEF653I SUBSTITUTION JCL - SYSOUT=*
     9      IEF653I SUBSTITUTION JCL - DSN=&&PCODE,UNIT=VIO,DCB=RECFM=VB,
    10      IEF653I SUBSTITUTION JCL - DSN=&&TABLES,UNIT=VIO,DCB=RECFM=VB,
    16      IEF653I SUBSTITUTION JCL - SYSOUT=*
    17      IEF653I SUBSTITUTION JCL - DSN=&&OBJECT,UNIT=VIO,DCB=RECFM=FB,
    18      IEF653I SUBSTITUTION JCL - PARM='//TIME=299,',REGION=2048K
    21      IEF653I SUBSTITUTION JCL - SYSOUT=*
    27      IEF653I SUBSTITUTION JCL - SYSOUT=*
    28      IEF653I SUBSTITUTION JCL - SYSOUT=*
    29      IEF653I SUBSTITUTION JCL - UNIT=VIO,SPACE=(TRK,(2,2))
    30      IEF653I SUBSTITUTION JCL - DUMMY,SYSOUT=*
IEF236I ALLOC. FOR FF#PAS COMPILE
IEF237I 280  ALLOCATED TO STEPLIB
IEF237I 191  ALLOCATED TO SYS00080
IEF237I 242  ALLOCATED TO INPUT
IEF237I 290  ALLOCATED TO PRD
IEF237I JES2 ALLOCATED TO OUTPUT
IEF237I VIO  ALLOCATED TO PRR
IEF237I VIO  ALLOCATED TO QRR
IEF142I FF#PAS COMPILE - STEP WAS EXECUTED - COND CODE 0000
IEF285I   PASCAL.PASLIB                                KEPT          *--------0
IEF285I   VOL SER NOS= PUB002.
IEF285I   SYS1.UCAT.MVS                                KEPT          *--------0
IEF285I   VOL SER NOS= MVSCAT.
IEF285I   FATT.TEST.SOURCE                             KEPT          *--------3
IEF285I   VOL SER NOS= MV0001.
IEF285I   PASCAL.PASOBJ                                KEPT          *--------0
IEF285I   VOL SER NOS= PUB003.
IEF285I   JES2.JOB01169.S00101                         SYSOUT
IEF285I   SYS20133.T140400.RA000.FF#PAS.PCODE          PASSED        *--------8
IEF285I   SYS20133.T140400.RA000.FF#PAS.TABLES         PASSED        *--------3
IEF373I STEP /COMPILE / START 20133.1404
IEF374I STEP /COMPILE / STOP  20133.1404 CPU    0MIN 00.12SEC SRB    0MIN 00.01SEC VIRT  4148K SYS   276K
*******************************************************************************************************************
*     1. JOBSTEP OF JOB: FF#PAS      STEPNAME: COMPILE     PROGRAM NAME: PASCAL     EXECUTED ON 12.05.20 FROM 14.04.00 TO 14.04.01 *
*         ELAPSED TIME  24:00:00,18                      CPU-IDENTIFIER:  TK4-           PAGE-IN:      0                          *
*             CPU TIME  00:00:00,13              VIRTUAL STORAGE USED:   4148K         PAGE-OUT:      0                          *
*           CORR. CPU:  00:00:00,13   CPU TIME HAS BEEN CORRECTED BY  1 / 1,0  MULTIPLIER                                       *
*                                                                                                                               *
*     I/O OPERATION                                                                                                             *
*     NUMBER OF RECORDS READ VIA DD * OR DD DATA:      0                                                                        *
*     280.......0 191.......0 242.......3 290.......0 DMY.......0 FFF.......8 FFF.......3                                       *
*                                                                                                                               *
*                                          CHARGE FOR STEP (W/O SYSOUT):          0,21                                      *
*******************************************************************************************************************
IEF236I ALLOC. FOR FF#PAS POSTPROC
IEF237I 280  ALLOCATED TO STEPLIB
IEF237I 191  ALLOCATED TO SYS00082
IEF237I VIO  ALLOCATED TO INPUT
IEF237I VIO  ALLOCATED TO PRD
IEF237I JES2 ALLOCATED TO OUTPUT
IEF237I VIO  ALLOCATED TO PRR
IEF142I FF#PAS POSTPROC - STEP WAS EXECUTED - COND CODE 0000
IEF285I   PASCAL.PASLIB                                KEPT          *--------0
IEF285I   VOL SER NOS= PUB002.
IEF285I   SYS1.UCAT.MVS                                KEPT          *--------0
IEF285I   VOL SER NOS= MVSCAT.
IEF285I   SYS20133.T140400.RA000.FF#PAS.PCODE          DELETED       *--------9
IEF285I   SYS20133.T140400.RA000.FF#PAS.TABLES         PASSED        *--------4
IEF285I   JES2.JOB01169.S00102                         SYSOUT
```

```
IEF285I   SYS20133.T140400.RA000.FF#PAS.OBJECT         PASSED         *--------7
IEF373I STEP /POSTPROC/ START 20133.1404
IEF374I STEP /POSTPROC/ STOP  20133.1404 CPU    0MIN 00.09SEC SRB    0MIN 00.00SEC VIRT  2064K SYS   316K
*********************************************************************************************************************
*     2. JOBSTEP OF JOB: FF#PAS      STEPNAME: POSTPROC    PROGRAM NAME: ASMPCODE   EXECUTED ON 12.05.20 FROM 14.04.01 TO 14.04.01 *
*         ELAPSED TIME  24:00:00,12                      CPU-IDENTIFIER:  TK4-           PAGE-IN:      0                          *
*             CPU TIME  00:00:00,09              VIRTUAL STORAGE USED:   2064K         PAGE-OUT:      0                          *
*           CORR. CPU:  00:00:00,09   CPU TIME HAS BEEN CORRECTED BY  1 / 1,0  MULTIPLIER                                       *
*                                                                                                                               *
*     I/O OPERATION                                                                                                             *
*     NUMBER OF RECORDS READ VIA DD * OR DD DATA:      0                                                                        *
*     280.......0 191.......0 FFF.......9 FFF.......4 DMY.......0 FFF.......7                                                   *
*                                                                                                                               *
*                                          CHARGE FOR STEP (W/O SYSOUT):          0,15                                      *
*********************************************************************************************************************
IEF236I ALLOC. FOR FF#PAS GO
IEF237I 280  ALLOCATED TO STEPLIB
IEF237I 191  ALLOCATED TO SYS00084
IEF237I VIO  ALLOCATED TO SYSLIN
IEF237I JES2 ALLOCATED TO SYSLOUT
IEF237I 280  ALLOCATED TO SYSLIB
IEF237I 148  ALLOCATED TO
IEF237I 242  ALLOCATED TO INPUT
IEF237I DMY  ALLOCATED TO PRD
IEF237I VIO  ALLOCATED TO QRD
IEF237I JES2 ALLOCATED TO FT06F001
IEF237I JES2 ALLOCATED TO OUTPUT
IEF237I VIO  ALLOCATED TO QRR
IEF237I DMY  ALLOCATED TO SYSUDUMP
IEF142I FF#PAS GO - STEP WAS EXECUTED - COND CODE 0000
IEF285I   PASCAL.PASLIB                                KEPT           *--------0
IEF285I   VOL SER NOS= PUB002.
IEF285I   SYS1.UCAT.MVS                                KEPT           *--------0
IEF285I   VOL SER NOS= MVSCAT.
IEF285I   SYS20133.T140400.RA000.FF#PAS.OBJECT         DELETED        *--------8
IEF285I   JES2.JOB01169.S00103                         SYSOUT
IEF285I   PASCAL.PASLIB                                KEPT           *-------17
IEF285I   VOL SER NOS= PUB002.
IEF285I   SYS1.FORTLIB                                 KEPT           *-------67
IEF285I   VOL SER NOS= MVSRES.
IEF285I   FATT.TEST.DATA                               KEPT           *--------2
IEF285I   VOL SER NOS= MV0001.
IEF285I   SYS20133.T140400.RA000.FF#PAS.TABLES         DELETED        *--------4
IEF285I   JES2.JOB01169.S00104                         SYSOUT
IEF285I   JES2.JOB01169.S00105                         SYSOUT
IEF285I   SYS20133.T140400.RA000.FF#PAS.R0000001       DELETED        *--------3
IEF373I STEP /GO      / START 20133.1404
IEF374I STEP /GO      / STOP  20133.1404 CPU    0MIN 05.42SEC SRB    0MIN 00.01SEC VIRT  2068K SYS   296K
*********************************************************************************************************************
*     3. JOBSTEP OF JOB: FF#PAS      STEPNAME: GO          PROGRAM NAME: LOADER     EXECUTED ON 12.05.20 FROM 14.04.01 TO 14.04.06 *
*         ELAPSED TIME  24:00:05,54                      CPU-IDENTIFIER:  TK4-           PAGE-IN:      0                          *
*             CPU TIME  00:00:05,43              VIRTUAL STORAGE USED:   2068K         PAGE-OUT:      0                          *
*           CORR. CPU:  00:00:05,43   CPU TIME HAS BEEN CORRECTED BY  1 / 1,0  MULTIPLIER                                       *
*                                                                                                                               *
*     I/O OPERATION                                                                                                             *
*     NUMBER OF RECORDS READ VIA DD * OR DD DATA:      0                                                                        *
*     280.......0 191.......0 FFF.......8 DMY.......0 280......17 148......67 242.......2 DMY.......0 FFF.......4 DMY.......0      *
*     DMY.......0 FFF.......3 DMY.......0                                                                                       *
*                                                                                                                               *
*                                          CHARGE FOR STEP (W/O SYSOUT):          9,05                                      *
*********************************************************************************************************************
IEF375I  JOB /FF#PAS  / START 20133.1404
IEF376I  JOB /FF#PAS  / STOP  20133.1404 CPU    0MIN 05.63SEC SRB    0MIN 00.02SEC
```

```
     1           ) (* NEL LIBRO SHOW DI MAGIA MATEMATICA DI MARTIN GARDNER NEL CAPITOLO 4        *)
     2           ) (* STRANEZZE DEI FATTORIALI, VIENE CITATO IL LIBRO DI ROBERT E. SMITH         *)
     3           ) (* THE BASES OF FORTRAN, DOVE SI TROVA UN PROGRAMMA PER STAMPARE LE CIFRE DI  *)
     4           ) (* N! FATTORIALE IN FORMA DI TRIANGOLO, LOSANGA, ESAGONO ED OTTAGONO.         *)
     5           ) (* QUESTO LIBRO NON SI TROVA ON-LINE, QUINDI BASANDOMI POCO SUL TESTO E MOLTO *)
     6           ) (* SULLE FIGURE DEL LIBRO DI GARDNER ECCO LA MIA VERSIONE IN PASCAL.          *)
     7           ) (*                                                                           *)
     8           ) (* ORIGINALI:                                                                *)
     9           ) (* SCIENTIFIC AMERICAN VOL. 217, NO. 2 (AUGUST 1967), PP. 104-109            *)
    10           ) (* MATHEMATICAL MAGIC SHOW - ALFRED A. KNOPF, INC.,NEW YORK, NY, 1977        *)
    11           ) (*                                                                           *)
    12           ) (* N.B. NELLA VECCHIA VERSIONE DEL COMPILATORE NON È POSSIBILE PASSARE LE     *)
    13           ) (*      FUNZIONI COME PARAMETRO                                              *)
    14           ) (*      ALTRE LIMITAZIONI SONO LA MANCANZA DI SET DI CARATTERI E LA MANCANZA  *)
    15           ) (*      DELLA CLAUSOLA OTHERWISE NEL CASE                                    *)
    16           ) (*                                                                           *)
    17           ) (*      MI TROVO MEGLIO CON WRITELN('1') RISPETTO A PAGE(OUTPUT)             *)
    18           )
    19           ) PROGRAM FIGUREFATTORIALI(INPUT,OUTPUT);
    20           ) (* FATTORIALE MASSIMO IL QUALE NELLA FORMA VOLUTA SIA STAMPABILE IN 132       *)
    21           ) (* COLONNE                                                                   *)
    22           ) CONST MAXTRI=1494; (* 4.096 CIFRE, LATO 64, LINEA MASSIMA 64*2 - 1 = 127 *)
    23           )       MAXLOS=2545; (* 7.565 CIFRE, LATO 62, LINEA MASSIMA 62*2 - 1 = 123 *)
    24           )       MAXESA=2236; (* 6.521 CIFRE, LATO 41, LINEA MASSIMA 41*3 - 2 = 121 *)
    25           )       MAXOTT=2739; (* 8.229 CIFRE, LATO 35, LINEA MASSIMA 35*3 - 2 = 103 *)
    26           )       MAXNC=8229;  (* OVVIAMENTE BASTA FINO A 2.739! *)
    27           ) TYPE FORME=(TRIANGOLO,LOSANGA,ESAGONO,OTTAGONO); (* FORME AMMISSIBILI *)
    28           ) VAR CIFRE:ARRAY[1..MAXNC] OF 0..9; (* FATTORIALE NELLA FORMA VOLUTA *)
    29   33220   1)     MIN,MAX:INTEGER; (* INPUT: INTERVALLO DI RICERCA VOLUTO *)
    30   33228   1)     MODO:CHAR; (* INPUT: MODO DI ESECUZIONE DEL PROGRAMMA *)
    31   33229   1)
    32   33229   1)    FUNCTION LATOTRIANGOLO(N:INTEGER):REAL;
    33           )    BEGIN
    34           )       LATOTRIANGOLO:=SQRT(N)
    35       7   2)    END;
    36      10   2)
    37           )    FUNCTION LATOLOSANGA(N:INTEGER):REAL;
    38           )    BEGIN
    39           )       LATOLOSANGA:=(SQRT(2*N-1)+1)/2
    40      15   2)    END;
    41      30   2)
    42           )    FUNCTION LATOESAGONO(N:INTEGER):REAL;
    43           )    BEGIN
    44           )       LATOESAGONO:=(SQRT(16*N-7)+5)/8
    45      15   2)    END;
    46      50   2)
    47           )    FUNCTION LATOOTTAGONO(N:INTEGER):REAL;
    48           )    BEGIN
    49           )       LATOOTTAGONO:=(SQRT(7*N-3)+5)/7
    50      15   2)    END;
    51      70   2)
    52           )    PROCEDURE STAMPAFORMA(FORMA:FORME; N:INTEGER); (* STAMPA N CIFRE IN FORMA *)
    53           )
    54           )       PROCEDURE STAMPALINEA(LUNGHEZZA:INTEGER); (* STAMPA UNA RIGA CENTRATA *)
    55           )       VAR FINE,I:INTEGER;
```

```
      56      92  3)        BEGIN
      57           )           FINE:=N-LUNGHEZZA;
      58       6  3)           WRITE(' ',' ':(132-LUNGHEZZA)DIV 2);
      59      19  3)           FOR I:=N DOWNTO FINE+1
      60      22  3)           DO WRITE(CIFRE[I]:1);
      61      48  3)           WRITELN;
      62      52  3)           N:=FINE
      63      52  3)        END;
      64     125  3)
      65           )        (* STAMPA IN FORMA DI TRIANGOLO *)
      66           )        (* N^2 SLOANE A000290           *)
      67           )        PROCEDURE STAMPATRIANGOLO(LATO:INTEGER);
      68           )        VAR I:INTEGER;
      69      88  3)        BEGIN
      70           )           FOR I:=1 TO LATO
      71       4  3)           DO STAMPALINEA(2*I-1)
      72      17  3)        END;
      73     152  3)
      74           )        (* STAMPA IN FORMA DI LOSANGA (ROMBO)           *)
      75           )        (* 2*N*(N+1)+1 ANCHE N^2+(N+1)^2 SLOANE A001844 *)
      76           )        PROCEDURE STAMPALOSANGA(LATO:INTEGER);
      77           )        VAR I:INTEGER;
      78      88  3)        BEGIN
      79           )           FOR I:=1 TO LATO
      80       4  3)           DO STAMPALINEA(2*I-1);
      81      26  3)           FOR I:=LATO-1 DOWNTO 1
      82      30  3)           DO STAMPALINEA(2*I-1)
      83      43  3)        END;
      84     205  3)
      85           )        (* STAMPA IN FORMA DI ESAGONO *)
      86           )        (* 4*N^2+3*N+1 SLOANE A033951 *)
      87           )        PROCEDURE STAMPAESAGONO(LATO:INTEGER);
      88           )        VAR I:INTEGER;
      89      88  3)        BEGIN
      90           )           FOR I:=0 TO LATO-1
      91       5  3)           DO STAMPALINEA(LATO+2*I);
      92      28  3)           FOR I:=LATO-2 DOWNTO 0
      93      32  3)           DO STAMPALINEA(LATO+2*I)
      94      45  3)        END;
      95     260  3)
      96           )        (* STAMPA IN FORMA DI OTTAGONO *)
      97           )        (* 7*N^2+4*N+1 SLOANE A005892  *)
      98           )        PROCEDURE STAMPAOTTAGONO(LATO:INTEGER);
      99           )        VAR I:INTEGER;
     100      88  3)        BEGIN
     101           )           FOR I:=0 TO LATO-1
     102       5  3)           DO STAMPALINEA(LATO+2*I);
     103      28  3)           FOR I:=1 TO LATO-2
     104      31  3)           DO STAMPALINEA(3*LATO-2);
     105      54  3)           FOR I:=LATO-1 DOWNTO 0
     106      58  3)           DO STAMPALINEA(LATO+2*I)
     107      71  3)        END;
     108     341  3)
     109           )     BEGIN (* STAMPAFORMA *)
     110           )        CASE FORMA OF
```

```
   111       4  2)          TRIANGOLO:STAMPATRIANGOLO(TRUNC(LATOTRIANGOLO(N)));
   112      13  2)            LOSANGA:STAMPALOSANGA(TRUNC(LATOLOSANGA(N)));
   113      21  2)            ESAGONO:STAMPAESAGONO(TRUNC(LATOESAGONO(N)));
   114      29  2)           OTTAGONO:STAMPAOTTAGONO(TRUNC(LATOOTTAGONO(N)))
   115      35  2)       END;
   116      41  2)       WRITELN
   117      41  2)    END;
   118     387  2)
   119           )    (* CALCOLA N! SLOANE A000142                                          *)
   120           )    (* RITORNA IL NUMERO DI CIFRE DI N! E LE CIFRE NEL VETTORE GLOBALE *)
   121           )    FUNCTION FATTORIALE(N:INTEGER):INTEGER;
   122           )    VAR I,J,NC,RIPORTO:INTEGER;
   123     100  2)    BEGIN
   124           )       NC:=1;
   125       4  2)       CIFRE[1]:=1;
   126      10  2)       FOR I:=N DOWNTO 2
   127      12  2)       DO BEGIN
   128      19  2)             RIPORTO:=0;
   129      21  2)             FOR J:=1 TO NC
   130      23  2)             DO BEGIN
   131      30  2)                   RIPORTO:=RIPORTO+CIFRE[J]*I;
   132      40  2)                   CIFRE[J]:=RIPORTO MOD 10;
   133      48  2)                   RIPORTO:=RIPORTO DIV 10
   134      49  2)                END;
   135      60  2)             WHILE RIPORTO>0
   136      61  2)             DO BEGIN
   137      65  2)                   NC:=NC+1;
   138      69  2)                   CIFRE[NC]:=RIPORTO MOD 10;
   139      77  2)                   RIPORTO:=RIPORTO DIV 10
   140      78  2)                END
   141      81  2)          END;
   142      90  2)       FATTORIALE:=NC
   143      90  2)    END;
   144     480  2)
   145           )    PROCEDURE ESEMPILIBRO; (* ZANICHELLI, BOLOGNA, 1980 *)
   146           )
   147           )       PROCEDURE TESTATAESEMPI(PRIMA:BOOLEAN); (* PRIMA RIGA DI OGNI PAGINA *)
   148           )       BEGIN
   149           )          IF NOT PRIMA
   150       2  3)          THEN WRITELN('1');
   151      13  3)          WRITELN('MARTIN GARDNER, SHOW DI MAGIA MATEMATICA':87);
   152      21  3)          WRITELN
   153      21  3)       END;
   154     506  3)
   155           )    BEGIN
   156           )       TESTATAESEMPI(TRUE);
   157       5  2)       STAMPAFORMA(TRIANGOLO,FATTORIALE(12));
   158      11  2)       WRITELN('9 CIFRE DI 12! NEL TESTO A PAGINA 35':85);
   159      19  2)       TESTATAESEMPI(FALSE);
   160      22  2)       STAMPAFORMA(TRIANGOLO,FATTORIALE(105));
   161      28  2)       WRITELN('169 CIFRE DI 105! FIGURA 10 A PAGINA 37':86);
   162      36  2)       TESTATAESEMPI(FALSE);
   163      39  2)       STAMPAFORMA(TRIANGOLO,FATTORIALE(508));
   164      45  2)       WRITELN('1.156 CIFRE DI 508! FIGURA 11 A PAGINA 38':87);
   165      53  2)       TESTATAESEMPI(FALSE);
```

```
   166      56  2)       STAMPAFORMA(LOSANGA,FATTORIALE(35));
   167      62  2)       (* NEL LIBRO LA CIFRA CENTRALE '6' NON È STAMPATA  *)
   168      62  2)       (* COME SFIDA AL LETTORE VIENE CHIESTO DI TROVARLA *)
   169      62  2)       WRITELN('41 CIFRE DI 35! NEL TESTO ALLE PAGINE 37 E 38':90);
   170      70  2)       TESTATAESEMPI(FALSE);
   171      73  2)       STAMPAFORMA(ESAGONO,FATTORIALE(477));
   172      79  2)       WRITELN('1.073 CIFRE DI 477! FIGURA 12 A PAGINA 39':87);
   173      87  2)       TESTATAESEMPI(FALSE);
   174      90  2)       STAMPAFORMA(OTTAGONO,FATTORIALE(2206));
   175      96  2)       WRITELN('6.421 CIFRE DI 2.206! FIGURA 13 PAGINA 40':87)
   176     104  2)    END;
   177     611  2)
   178           )    (* CALCOLA, VERIFICA E SE È NELLA FORMA VOLUTA STAMPA *)
   179           )    (* NON PARTICOLARMENTE INTELLIGENTE OD EFFICIENTE     *)
   180           )    PROCEDURE TESTFORMA(FORMA:FORME; MIN,MAX:INTEGER);
   181           )    VAR N,NC:INTEGER;
   182     100  2)        TROVATO1,PRIMA:BOOLEAN;
   183     102  2)
   184     102  2)       (* NUMERO DI CIFRE DI N! SLOANE A034886                              *)
   185     102  2)       (* FUNZIONE VALIDA FINO A N = 6.561.101.970.383                      *)
   186     102  2)       (* CAUSA LIMITI PRECISIONE ARRIVA FINO A N = 268.609.166 PER IL QUALE *)
   187     102  2)       (* RITORNA 2.147.483.642 (CIRCA MAXINT)                              *)
   188     102  2)       FUNCTION KAMENETSKY(N:INTEGER):INTEGER;
   189           )       CONST C1=1.83787706640934548; (* LN(2*PI) *)
   190           )             C2=4.60517018598809136; (* 2*LN(10) *)
   191           )       BEGIN
   192           )          IF N<2
   193       3   3)          THEN KAMENETSKY:=1
   194       7   3)          ELSE KAMENETSKY:=TRUNC((C1-2*N+LN(N)*(1+2*N))/C2)+1
   195      33   3)       END;
   196     648  3)
   197           )       (* DATO N, RITORNA IL NUMERO MASSIMO IL CUI FATTORIALE HA N CIFRE *)
   198           )       (* N.B. PER ORA NON È USATA!                                      *)
   199           )       (*
   200           )       FUNCTION INVKAMENETSKY(N:INTEGER):INTEGER;
   201           )       VAR L,H,M,K:INTEGER;
   202           )       BEGIN
   203           )          IF N=1
   204           )          THEN INVKAMENETSKY:=3
   205           )          ELSE BEGIN
   206           )                  L:=0;
   207           )                  H:=N;
   208           )                  M:=2*N;
   209           )                  K:=KAMENETSKY(M);
   210           )                  WHILE (L<=H)AND(K<>N)
   211           )                  DO BEGIN
   212           )                        IF K<N
   213           )                        THEN L:=M+1
   214           )                        ELSE H:=M-1;
   215           )                        M:=(L+H) DIV 2;
   216           )                        K:=KAMENETSKY(M)
   217           )                     END;
   218           )                  INVKAMENETSKY:=M
   219           )               END
   220           )       END;
```

```
                )       *)
                )
                )       (* VERO SE N È RAPPRESENTABILE IN FORMA *)
                )       FUNCTION INFORMA(FORMA:FORME; N:INTEGER):BOOLEAN;
                )       VAR LATO:REAL;
         96  3)        BEGIN
                )          CASE FORMA OF
          4  3)             TRIANGOLO:LATO:=LATOTRIANGOLO(N);
         11  3)             LOSANGA:LATO:=LATOLOSANGA(N);
         17  3)             ESAGONO:LATO:=LATOESAGONO(N);
         23  3)             OTTAGONO:LATO:=LATOOTTAGONO(N)
         26  3)          END;
         33  3)          INFORMA:=LATO=TRUNC(LATO)
         36  3)       END;
        688  3)
                )       (* LUNGHEZZA DI N CON SEPARATORI DI MIGLIAIA *)
                )       FUNCTION LUN1000(N:INTEGER):INTEGER;
                )       CONST C1=2.30258509299404568; (* LN(10) *)
                )       VAR L:INTEGER;
         88  3)        BEGIN
                )          IF N=0
          3  3)          THEN LUN1000:=1
          7  3)          ELSE BEGIN
         10  3)                  L:=TRUNC(LN(N)/C1);
         20  3)                  LUN1000:=L+L DIV 3+1
         25  3)               END
         28  3)       END;
        717  3)
                )       (* STAMPA N CON SEPARATORE DI MIGLIAIA, IN CAMPO M *)
                )       PROCEDURE STAMPA1000(N,M:INTEGER);
                )
                )          (* STAMPA N<1000 EVENTUALMENTE PRECEDUTO DA ZERI *)
                )          PROCEDURE STAMPA0(N:INTEGER);
                )          BEGIN
                )             CASE N OF
          3  4)                    0..9:WRITE('00');
         13  4)                 10..99:WRITE('0')
         20  4)             (* NON ESISTE OTHERWISE, SE NESSUN CASO *)
         20  4)             (* È VERIFICATO PROSEGUE IN SILENZIO... *)
         20  4)             END;
        121  4)             WRITE(N:1)
        127  4)          END;
        845  4)
                )       BEGIN (* STAMPA1000 *)
                )          IF N<1000
          3  3)          THEN WRITE(N:M)
         13  3)          ELSE BEGIN
         14  3)                  STAMPA1000(N DIV 1000,M-4);
         22  3)                  WRITE('.');
         28  3)                  STAMPA0(N MOD 1000)
         32  3)               END
         33  3)       END;
        879  3)
                )       (* STAMPA CENTRATA DELLA PRIMA RIGA DI OGNI PAGINA                    *)
                )       (* RICALCOLA OGNI VOLTA, INEFFICENTE MA NEL COMPLESSO PIÙ LEGGIBILE *)
```

```
   276           )       PROCEDURE TESTATA(FORMA:FORME; MIN,MAX:INTEGER; PRIMA:BOOLEAN);
   277           )       VAR CMIN,CMAX,CTST:INTEGER;
   278     108   3)       BEGIN
   279           )          CMIN:=LUN1000(MIN);
   280       6   3)          CMAX:=LUN1000(MAX);
   281      10   3)          CASE FORMA OF
   282      12   3)             TRIANGOLO:CTST:=(98-CMIN-CMAX) DIV 2;
   283      23   3)               LOSANGA:CTST:=(100-CMIN-CMAX) DIV 2;
   284      33   3)               ESAGONO:CTST:=(100-CMIN-CMAX) DIV 2;
   285      43   3)              OTTAGONO:CTST:=(100-CMIN-CMAX) DIV 2
   286      49   3)          END;
   287      57   3)          IF NOT PRIMA
   288      57   3)          THEN WRITELN('1');
   289      68   3)          WRITE(' ':CTST);
   290      74   3)          WRITE('IN FORMA DI ');
   291      81   3)          CASE FORMA OF
   292      83   3)             TRIANGOLO:WRITE('TRIANGOLO');
   293      93   3)               LOSANGA:WRITE('LOSANGA');
   294     102   3)               ESAGONO:WRITE('ESAGONO');
   295     111   3)              OTTAGONO:WRITE('OTTAGONO')
   296     119   3)          END;
   297     124   3)          WRITE(' DA ');
   298     131   3)          STAMPA1000(MIN,CMIN);
   299     135   3)          WRITE('! FINO A ');
   300     142   3)          STAMPA1000(MAX,CMAX);
   301     146   3)          WRITELN('!');
   302     153   3)          WRITELN
   303     153   3)       END;
   304    1037   3)
   305           )       (* NUMERO DI ZERI FINALI DI N! SLOANE A027868 *)
   306           )       FUNCTION ZEROFINALI(N:INTEGER):INTEGER;
   307           )       VAR T,P,S:INTEGER;
   308      96   3)       BEGIN
   309           )          T:=0;
   310       4   3)          P:=5;
   311       6   3)          S:=N DIV P;
   312      10   3)          WHILE S>0
   313      11   3)          DO BEGIN
   314      15   3)                T:=T+S;
   315      19   3)               P:=P*5;
   316      23   3)                S:=N DIV P
   317      24   3)             END;
   318      28   3)          ZEROFINALI:=T
   319      28   3)       END;
   320    1068   3)
   321           )       (* STAMPA CENTRATA DELLA ULTIMA RIGA DI OGNI PAGINA *)
   322           )       PROCEDURE FONDO(N,NC,ZF:INTEGER);
   323           )       VAR CN,CNC,CZF,CFND:INTEGER;
   324     108   3)       BEGIN
   325           )          CN:=LUN1000(N);
   326       6   3)          CNC:=LUN1000(NC);
   327      10   3)          CZF:=LUN1000(ZF);
   328      14   3)          IF ZF=0
   329      15   3)          THEN CFND:=(122-CN-CNC) DIV 2
   330      24   3)          ELSE CFND:=(105-CN-CNC-CZF) DIV 2;
```

```
   331      38  3)          WRITE(' ':CFND);
   332      44  3)          STAMPA1000(N,CN);
   333      48  3)          WRITE('! DI ');
   334      55  3)          STAMPA1000(NC,CNC);
   335      59  3)          WRITE(' CIFR');
   336      66  3)          IF NC>1
   337      67  3)          THEN WRITE('E')
   338      77  3)          ELSE WRITE('A');
   339      84  3)          IF ZF=0
   340      85  3)          THEN WRITELN
   341      89  3)          ELSE BEGIN
   342      94  3)                  WRITE(' CON ');
   343     101  3)                  STAMPA1000(ZF,CZF);
   344     105  3)                  WRITE(' ZER');
   345     112  3)                  IF ZF>1
   346     113  3)                  THEN WRITELN('I FINALI')
   347     125  3)                  ELSE WRITELN('O FINALE')
   348     134  3)               END
   349     134  3)       END;
   350    1203  3)
   351           )    BEGIN (* TESTFORMA *)
   352           )       TROVATO1:=FALSE; (* INDICA SE TROVATO ALMENO UN FATTORIALE DA STAMPARE *)
   353       4   2)       PRIMA:=TRUE; (* INDICA SE È LA PRIMA PAGINA STAMPATA *)
   354       6   2)       FOR N:=MIN TO MAX
   355       8   2)       DO BEGIN
   356      15   2)             NC:=KAMENETSKY(N);
   357      19   2)             IF INFORMA(FORMA,NC)
   358      22   2)              THEN BEGIN
   359      25   2)                     TROVATO1:=TRUE;
   360      27   2)                     TESTATA(FORMA,MIN,MAX,PRIMA);
   361      33   2)                     PRIMA:=FALSE;
   362      35   2)                     STAMPAFORMA(FORMA,FATTORIALE(N));
   363      41   2)                     FONDO(N,NC,ZEROFINALI(N))
   364      47   2)                  END
   365      48   2)          END;
   366      56   2)       IF NOT TROVATO1
   367      56   2)       THEN BEGIN
   368      60   2)               TESTATA(FORMA,MIN,MAX,PRIMA);
   369      66   2)               WRITELN('NESSUNO':70)
   370      74   2)            END
   371      74   2)    END;
   372    1278   2)
   373           )    (* RIPORTA TIPO ERRORE E MUORE *)
   374           )    PROCEDURE ERRORE(ERR:INTEGER);
   375           )    BEGIN
   376           )       WRITE(' ERRORE: ');
   377       9   2)       CASE ERR OF
   378      10   2)          1:WRITELN('MODO DEVE ESSERE SOLO G, T, L, E, O');
   379      21   2)          2:WRITELN('LIMITI INCONSISTENTI');
   380      31   2)          3:WRITELN('ECCEDE IL LIMITE DI 132 CARATTERI')
   381      40   2)       END;
   382      44   2)       EXIT(ERR) (* MUORE CON ERR COME RETURN CODE *)
   383      46   2)    END;
   384    1325   2)
   385           ) BEGIN (* MAIN *)
```

```
   386           ) (* CI SONO 2 MODI DI ESECUZIONE:                                                *)
   387           ) (* - STAMPARE QUELLO CHE SI TROVA NEL LIBRO DI GARDNER (G)                       *)
   388           ) (* - STAMPARE I FATTORIALI RAPPRESENTABILI IN UNA DELLE POSSIBILI FORME           *)
   389           ) (*   (T,L,E,O) SEGUITO DAI LIMITI MINIMO E MASSIMO NEI QUALI CERCARE             *)
   390           )    READLN(MODO,MIN,MAX);
   391      21   1)    (* NON POSSO VERIFICARE CON: MODO IN ['G','T','L',... *)
   392      21   1)    IF (MODO<>'G')AND(MODO<>'T')AND(MODO<>'L')AND(MODO<>'E')AND(MODO<>'O')
   393      39   1)    THEN ERRORE(1);
   394      45   1)    IF MODO='G'
   395      46   1)    THEN ESEMPILIBRO
   396      50   1)    ELSE BEGIN
   397      53   1)            IF (MIN<0)OR(MAX<0)OR(MIN>MAX)
   398      63   1)            THEN ERRORE(2);
   399      69   1)            IF (MODO='T')AND(MAX>MAXTRI)OR(MODO='L')AND(MAX>MAXLOS)OR
   400      84   1)               (MODO='E')AND(MAX>MAXESA)OR(MODO='O')AND(MAX>MAXOTT)
   401      98   1)            THEN ERRORE(3);
   402     105   1)            CASE MODO OF
   403     107   1)               'T':TESTFORMA(TRIANGOLO,MIN,MAX);
   404     115   1)               'L':TESTFORMA(LOSANGA,MIN,MAX);
   405     122   1)               'E':TESTFORMA(ESAGONO,MIN,MAX);
   406     129   1)               'O':TESTFORMA(OTTAGONO,MIN,MAX)
   407     134   1)            END
   408     167   1)         END
   409     167   1) END.

  ****      NO  SYNTAX ERROR(S) DETECTED.
  ****     409  LINE(S) READ,   23 PROCEDURE(S) COMPILED,
  ****    1494  P_INSTRUCTIONS GENERATED,   0.05 SECONDS IN COMPILATION.
```

```
****      STANFORD PASCAL POST-PROCESSOR, VERSION OF OCT.-79.
****      NO ASSEMBLY ERROR(S) DETECTED.
****    9300 BYTES OF CODE GENERATED,  0.04 SECONDS IN POST_PROCESSING.
```

VS LOADER

OPTIONS USED - PRINT,MAP,NOLET,CALL,RES,NOTERM,SIZE=307200,NAME=**GO

NAME	TYPE	ADDR	NAME	TYPE	ADDR	NAME	TYPE	ADDR	NAME	TYPE	ADDR	NAME	TYPE	ADDR
LATOT001	SD	AC010	LATOL002	SD	AC0A8	LATOE003	SD	AC168	LATOO004	SD	AC228	STAMP006	SD	AC2F0
STAMP007	SD	AC400	STAMP008	SD	AC4A0	STAMP009	SD	AC5A0	STAMP010	SD	AC6B0	STAMP005	SD	AC828
FATTO011	SD	AC9E0	TESTA013	SD	ACB60	ESEMP012	SD	ACC20	KAMEN015	SD	ACF90	INFOR016	SD	AD0B0
LUN10017	SD	AD210	STAMP019	SD	AD2F8	STAMP018	SD	AD498	TESTA020	SD	AD580	ZEROF021	SD	AD8F0
FONDO022	SD	AD998	TESTF014	SD	ADC58	ERROR023	SD	ADE68	$MAINBLK	SD	ADFF8	IHCLSQRT*	SD	AE490
DSQRT *	LR	AE490	IHCLLOG *	SD	AE5F0	DLOG10 *	LR	AE5F0	DLOG *	LR	AE608	$PASENT *	SD	AE7F0
$PASINT *	LR	AED58	IFYVERRM*	LR	AF422	IHCERRM *	LR	AF422	IHOERRM *	LR	AF422	IHNERRM *	LR	AF422
ERRMON *	LR	AF422	IFYVERRE*	LR	AF456	IHOERRE *	LR	AF456	IHNERRE *	LR	AF456	IHCERRE *	LR	AF456
$PASCSP *	LR	AF460	$WRADDR *	SD	B0AD8	$IDLEN *	SD	B0C88	$GETPNAM*	SD	B0D18	$ALIGN *	SD	B0EA8
$ERRMSG *	SD	B0EF0	$TRANSVA*	SD	B11F8	$CNVTNUM*	SD	B1280	$PRNT *	SD	B13C0	$IVSCAN *	SD	B2150
$PRNTVAR*	SD	B27C8	$FROMLIN*	SD	B2D48	$PRNTLNK*	SD	B2EE8	$PRNTSYS*	SD	B30A8	SNAPSHOT*	SD	B3B80
#MAINBLK*	SD	B4080	IHCECOMH*	SD	B40E8	IBCOM# *	LR	B40E8	FDIOCS# *	LR	B41A4	INTSWTCH*	LR	B502E
IHCCOMH2*	SD	B5050	SEQDASD *	LR	B53C8	IHCFCVTH*	SD	B56B0	ADCON# *	LR	B56B0	FCVAOUTP*	LR	B575A
FCVLOUTP*	LR	B57EA	FCVZOUTP*	LR	B5942	FCVIOUTP*	LR	B5CF6	FCVEOUTP*	LR	B61F8	FCVCOUTP*	LR	B6412
INT6SWCH*	LR	B66FB	IHCEFIOS*	SD	B6868	FIOCS# *	LR	B6868	FIOCSBEP*	LR	B686E	IHCFIOS2*	SD	B7790
IHCEFNTH*	SD	B7CC0	ARITH# *	LR	B7CC0	ADJSWTCH*	LR	B805C	IHCUOPT *	SD	B8208	IHCUATBL*	SD	B8508

TOTAL LENGTH CB30
ENTRY ADDRESS AE7F0

MARTIN GARDNER, SHOW DI MAGIA MATEMATICA

4
790
01600

9 CIFRE DI 12! NEL TESTO A PAGINA 35

MARTIN GARDNER, SHOW DI MAGIA MATEMATICA

1
081
39675
8240290
900504101
30580032964
9720646107774
902579144176636
57322653190990515
3326984536526808240
339776398934872029657
99387290781343681609728
000000000000000000000000

169 CIFRE DI 105! FIGURA 10 A PAGINA 37

MARTIN GARDNER, SHOW DI MAGIA MATEMATICA

5
119
90692
7755879
266003615
25819185379
7984360677298
470133958906714
46011174633964398
5839112233165772956
548496166254935516795
14565079522588677608012
64234890456621474531263 49
82579003643715864326648 2002
88113505694916924243929121639
799512332068020538814982 9536720
69754658933810512002000567 4705145
28641409978978956631664608452253922
21821393220912608897117102175009345 98
65954648792945921473500720076910566 7735
54074289548655659977226200540160335058131
83653842355107140714910988358127365889227 95
51145646142125477380490785307338448488878 4090
75030962875912509521999525292598359880846423952
39312041118182809792135447776447515384352087 74603
08847711603222365116443941922000207356732518015 1958
35354728897604905269289015307797618984464654042934912
78827334798256169555312161070502714012594598752495 08169
44001332739531688700083391176448328498761907508834 3797786
47371945157918046252226969546616811434035461815792968273198
25456256137050498342385445577026945363852921453460803360 71424
28916011172084901890324904752912842288646776426787786156 8498090
42964480000000000000000000000000000000000000000000000000000000
00000000000000000000000000000000000000000000000000000000000000

1.156 CIFRE DI 508! FIGURA 11 A PAGINA 38

MARTIN GARDNER, SHOW DI MAGIA MATEMATICA

1
033
31479
6638614
492966665
1337523
20000
000
0

41 CIFRE DI 35! NEL TESTO ALLE PAGINE 37 E 38

MARTIN GARDNER, SHOW DI MAGIA MATEMATICA

17108972589718074
1439528307936299026
080765545554532458183
43255130543516432376912
4663791911119657860822050
367340495642348613717749611
38104459104482535212494659899
5225079402598873366451131040234
240130493689852679573590918519290
66647636392705738600295487428650940
0535103538524596394743595531728001643
083783948745781956212836911156587085000
40781396853030778257813849856692950471963
5089328018573725755534194119396813233357487
709737509271413007324171020350516977549843435
61187933295519151457453789138048055187827977590
7750007855795139817496078270462761613125177420579
97170554688538703689036095806399241086011592997
020790226888203087101533653915806041722653430
0377642434651424325601245917031000886439794
86942002854170097571338930915447098888372
333024657251637441276280296188483408232
2723195014038951851520634322622612616
12431271509190879459978732133255390
601413833379281814639023615443036
2338368861798856260050552801204
22598617062894203619648023806
809643832836096000000000000
0000000000000000000000000
00000000000000000000000
000000000000000000000
0000000000000000000
00000000000000000

1.073 CIFRE DI 477! FIGURA 12 A PAGINA 39

MARTIN GARDNER, SHOW DI MAGIA MATEMATICA

1025729611602273508352741640301
162679407322869608383074471138746
304901769475927889891580283634409 92
488100427487108141284538954557861796 4
937451453403559961733083620099625538065
410103965983450356536886049548740286047 84
693541480140000895235453880549090840995 9861
660246045191650260507136760688118903350996713
218239475144239610177425582590804946781774580 85
258602282220764667082088348858233815945835212570 8
362194967520635351099568538807160144980504808697217
603618214016011388469757542689774696342978051913938 77
072174096549336149766650554628450919195303289888895 9567
069201586371013497509110063361133485051253334853981163412
078512022288660975137885276489190646128047150515165335508 08
562886414713844874352100211354890944141784747305560820504722 8
050888506002351831385707706597375486196289582204458204639226419
399886858016918887408232420746556303099664346828476487830123696 90
094967957371372203250296393498993877523759310227500062677134279 3017
571237823459954555639364520012107232014386673952152555563687059868597
305616991283182757785116906710091059440544299482258777692501807729390 89
548246823108591574535820331454367565683946527972069750110941288640845632 5
452410148100374780426054880997809853185180536108897611555630604942279452179
842966862406524689941350364742428684536653496239258447227152978610946528335 33
624307631721402302570347358518280966813285139998664703794197875277468292847695
603640621614001511781845118088875779459341557554605484271581941683408763840520361
231708980267959228473946356275579907542718540456964550756816129900977065157093375 85
360945715570795199995699660237048930614133482283295973214693498649871110650514342 3006
463954096916259897686557876127375781093939500600724947472139150331394336555784059174 39
665292104370275293657928435177782793233198684065726355225031596919246099650639142894345 10
701982156544216851692696975238931899566124681405591269980891915920329405517898790031475920 8
044250649506799948940775857149279794048804929644048992801163241712802869085457193120652508 8
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6.421 CIFRE DI 2.206! FIGURA 13 PAGINA 40

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LINE # RANGE  RUN CNT  CONSTRUCT      PAGE   1
---- - -----  --- ---  ---------      ---- ---

  34  -   35        3  PROCEDURE: LATOTRIANGOL
  39  -   40        1  PROCEDURE: LATOLOSANGA
  44  -   45        1  PROCEDURE: LATOESAGONO
  49  -   50        1  PROCEDURE: LATOOTTAGONO
  57  -   63      183  PROCEDURE: STAMPALINEA
  60  -   60     8869    FOR STMT
  70  -   72        3  PROCEDURE: STAMPATRIANG
  71  -   72       50    FOR STMT
  79  -   83        1  PROCEDURE: STAMPALOSANG
  80  -   80        5    FOR STMT
  82  -   83        4    FOR STMT
  90  -   94        1  PROCEDURE: STAMPAESAGON
  91  -   91       17    FOR STMT
  93  -   94       16    FOR STMT
 101  -  107        1  PROCEDURE: STAMPAOTTAGO
 102  -  102       31    FOR STMT
 104  -  104       29    FOR STMT
 106  -  107       31    FOR STMT
 110  -  117        6  PROCEDURE: STAMPAFORMA
 111  -  111        3      CASE CLAUSE
 112  -  112        1      CASE CLAUSE
 113  -  113        1      CASE CLAUSE
 114  -  115        1      CASE CLAUSE
 124  -  143        6  PROCEDURE: FATTORIALE
 127  -  141     3337    FOR STMT
 130  -  134  8208427      FOR STMT
 136  -  141     8863      WHILE STMT
 149  -  153        6  PROCEDURE: TESTATAESEMP
 150  -  150        5    THEN CLAUSE
 156  -  176        1  PROCEDURE: ESEMPILIBRO
 192  -  195        0  PROCEDURE: KAMENETSKY
 193  -  193        0      THEN CLAUSE
 194  -  195        0      ELSE CLAUSE
 227  -  234        0  PROCEDURE: INFORMA
 228  -  228        0      CASE CLAUSE
 229  -  229        0      CASE CLAUSE
 230  -  230        0      CASE CLAUSE
 231  -  232        0      CASE CLAUSE
 241  -  247        0  PROCEDURE: LUN1000
 242  -  242        0      THEN CLAUSE
 243  -  247        0      ELSE CLAUSE
 255  -  262        0  PROCEDURE: STAMPA0
 256  -  256        0      CASE CLAUSE
 257  -  260        0      CASE CLAUSE
 265  -  272        0  PROCEDURE: STAMPA1000
 266  -  266        0      THEN CLAUSE
 267  -  272        0      ELSE CLAUSE
 279  -  303        0  PROCEDURE: TESTATA
 282  -  282        0      CASE CLAUSE
 283  -  283        0      CASE CLAUSE
 284  -  284        0      CASE CLAUSE
 285  -  286        0      CASE CLAUSE
 288  -  288        0    THEN CLAUSE
 292  -  292        0      CASE CLAUSE
 293  -  293        0      CASE CLAUSE
```

294	-	294	0		CASE CLAUSE
295	-	296	0		CASE CLAUSE
309	-	319	0	PROCEDURE:	ZEROFINALI
313	-	317	0		WHILE STMT
325	-	349	0	PROCEDURE:	FONDO
329	-	329	0		THEN CLAUSE
330	-	330	0		ELSE CLAUSE
337	-	337	0		THEN CLAUSE
338	-	338	0		ELSE CLAUSE
340	-	340	0		THEN CLAUSE
341	-	349	0		ELSE CLAUSE
346	-	346	0		THEN CLAUSE
347	-	348	0		ELSE CLAUSE
352	-	371	0	PROCEDURE:	TESTFORMA
355	-	365	0		FOR STMT
358	-	365	0		THEN CLAUSE
367	-	371	0		THEN CLAUSE
376	-	383	0	PROCEDURE:	ERRORE
378	-	378	0		CASE CLAUSE
379	-	379	0		CASE CLAUSE
380	-	381	0		CASE CLAUSE
390	-	409	1	PROCEDURE:	$MAINBLK
393	-	393	0		THEN CLAUSE
395	-	395	1		THEN CLAUSE
396	-	409	0		ELSE CLAUSE
398	-	398	0		THEN CLAUSE
401	-	401	0		THEN CLAUSE
403	-	403	0		CASE CLAUSE
404	-	404	0		CASE CLAUSE
405	-	405	0		CASE CLAUSE
406	-	407	0		CASE CLAUSE

```
                    FFFFFFFFFFFF  FFFFFFFFFFFF    ##    ##    PPPPPPPPPPP    AAAAAAAAAA    SSSSSSSSSS
                   FFFFFFFFFFFF  FFFFFFFFFFFF    ##    ##    PPPPPPPPPPPP  AAAAAAAAAAAA  SSSSSSSSSSS
                  FF            FF            ############  PP        PP  AA        AA  SS        SS
                 FF            FF            ############  PP        PP  AA        AA  SS
                FF            FF              ##    ##    PP        PP  AA        AA  SSS
               FFFFFFFF      FFFFFFFF         ##    ##    PPPPPPPPPPPP  AAAAAAAAAAAA   SSSSSSSSS
              FFFFFFFF      FFFFFFFF          ##    ##    PPPPPPPPPPP   AAAAAAAAAAAA    SSSSSSSSS
             FF            FF              ##    ##    PP            AA        AA           SSS
            FF            FF             ############  PP            AA        AA           SS
           FF            FF             ############  PP            AA        AA  SS        SS
          FF            FF               ##    ##    PP            AA        AA  SSSSSSSSSSS
         FF            FF                ##    ##    PP            AA        AA   SSSSSSSSS


          JJJJJJJJJJ      11            11        6666666666    9999999999              AAAAAAAAAA
          JJJJJJJJJJ     111           111       666666666666  999999999999            AAAAAAAAAAAA
              JJ        1111          1111       66        66  99        99            AA        AA
              JJ          11            11       66            99        99            AA        AA
              JJ          11            11       66            99        99            AA        AA
              JJ          11            11       66666666666   999999999999            AAAAAAAAAAAA
              JJ          11            11       666666666666  999999999999            AAAAAAAAAAAA
              JJ          11            11       66        66  99                      AA        AA
        JJ    JJ          11            11       66        66  99                      AA        AA
        JJ    JJ          11            11       66        66  99        99            AA        AA
        JJJJJJJJ      1111111111    1111111111   666666666666  999999999999            AA        AA
         JJJJJJ       1111111111    1111111111    6666666666    9999999999             AA        AA

****A   END   JOB 1169  FF#PAS                          ROOM        2.04.06 PM 12 MAY 20  PRINTER1  SYS TK4-  JOB 1169   END   A****
****A   END   JOB 1169  FF#PAS                          ROOM        2.04.06 PM 12 MAY 20  PRINTER1  SYS TK4-  JOB 1169   END   A****
****A   END   JOB 1169  FF#PAS                          ROOM        2.04.06 PM 12 MAY 20  PRINTER1  SYS TK4-  JOB 1169   END   A****
```