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**CMU***CMU***CMU***CMU*  EXEC II CREATED    15 DEC 68    D003EW13       START JOB NO  4439  DSTN   CARD ***       **CMU***CMU***CMU*
**CMU***CMU***CMU***CMU*  EXEC II CREATED    15 DEC 68    D003EW13       START JOB NO  4439  DSTN   CARD ***       **CMU***CMU***CMU*
**CMU***CMU***CMU***CMU*  EXEC II CREATED    15 DEC 68    D003EW13       START JOB NO  4439  DSTN   CARD ***       **CMU***CMU***CMU*
**CMU***CMU***CMU***CMU*  EXEC II CREATED    15 DEC 68    D003EW13       START JOB NO  4439  DSTN   CARD ***       **CMU***CMU***CMU*
**CMU***CMU***CMU***CMU*  EXEC II CREATED    15 DEC 68    D003EW13       START JOB NO  4439  DSTN   CARD ***       **CMU***CMU***CMU*
**CMU***CMU***CMU***CMU*  EXEC II CREATED    15 DEC 68    D003EW13       START JOB NO  4439  DSTN   CARD ***       **CMU***CMU***CMU*
**CMU***CMU***CMU***CMU*  EXEC II CREATED    15 DEC 68    D003EW13       START JOB NO  4439  DSTN   CARD ***       **CMU***CMU***CMU*
**CMU***CMU***CMU***CMU*  EXEC II CREATED    15 DEC 68    D003EW13       START JOB NO  4439  DSTN   CARD ***       **CMU***CMU***CMU*
**CMU***CMU***CMU***CMU*  EXEC II CREATED    15 DEC 68    D003EW13       START JOB NO  4439  DSTN   CARD ***       **CMU***CMU***CMU*
**CMU***CMU***CMU***CMU*  EXEC II CREATED    15 DEC 68    D003EW13       START JOB NO  4439  DSTN   CARD ***       **CMU***CMU***CMU*
                                                                                    23 FEB 69   18:36:55.359

  EW13              4439
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Mercury

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**CMU***CMU***CMU***CMU*  EXEC II CREATED    15 DEC 68    D003EW13       START JOB NO  4439  DSTN   CARD ***       **CMU***CMU***CMU*
**CMU***CMU***CMU***CMU*  EXEC II CREATED    15 DEC 68    D003EW13       START JOB NO  4439  DSTN   CARD ***       **CMU***CMU***CMU*
**CMU***CMU***CMU***CMU*  EXEC II CREATED    15 DEC 68    D003EW13       START JOB NO  4439  DSTN   CARD ***       **CMU***CMU***CMU*
**CMU***CMU***CMU***CMU*  EXEC II CREATED    15 DEC 68    D003EW13       START JOB NO  4439  DSTN   CARD ***       **CMU***CMU***CMU*
**CMU***CMU***CMU***CMU*  EXEC II CREATED    15 DEC 68    D003EW13       START JOB NO  4439  DSTN   CARD ***       **CMU***CMU***CMU*
**CMU***CMU***CMU***CMU*  EXEC II CREATED    15 DEC 68    D003EW13       START JOB NO  4439  DSTN   CARD ***       **CMU***CMU***CMU*
**CMU***CMU***CMU***CMU*  EXEC II CREATED    15 DEC 68    D003EW13       START JOB NO  4439  DSTN   CARD ***       **CMU***CMU***CMU*
**CMU***CMU***CMU***CMU*  EXEC II CREATED    15 DEC 68    D003EW13       START JOB NO  4439  DSTN   CARD ***       **CMU***CMU***CMU*
**CMU***CMU***CMU***CMU*  EXEC II CREATED    15 DEC 68    D003EW13       START JOB NO  4439  DSTN   CARD ***       **CMU***CMU***CMU*
**CMU***CMU***CMU***CMU*  EXEC II CREATED    15 DEC 68    D003EW13       START JOB NO  4439  DSTN   CARD ***       **CMU***CMU***CMU*
**CMU***CMU***CMU***CMU*  EXEC II CREATED    15 DEC 68    D003EW13       START JOB NO  4439  DSTN   CARD ***       **CMU***CMU***CMU*
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```
@IT ALG MERCURY                                                                    23 FEB 69   18:36:55.363
COMPILED BY UNIVAC 1107/1108  ALGOL DATED 14 JUNE 68 LCC 2801-0008
THIS COMPILATION WAS DONE ON 23 FEB 69 AT 18:36:55


     A NEW VERSION OF ALGOL  HAS BEEN INSTALLED.
DOUBLE PRECISION CODE IS NOW COMPILED FOR REAL 2
VARIABLES.     AN A-FLAG MUST BE USED ON THE XQT
CARD.       @ XQT,A <NAME>
IF THE  FLAG IS OMITTED  AMBIGUOUS  ENTRY POINTS
WILL RESULT.
     THE NEGATIVE INTEGER PROBLEM  HAS BEEN COR-
RECTED. IF R2 IS A REAL 2 VARIABLE THEN   R2=-1;
WILL ASSIGN R2 A VALUE OF MINUS ONE.
     THE LIBRARY  ROUTINES  FOR MAX, MIN AND EX-
PONENTIATION  STILL  DELIVER  SINGLE  PRECISION
RESULTS.
     THE ABS PROCEDURE SOMETIMES DELIVERS INCOR-
RECT RESULTS FOR REAL 2 VARIABLES.


          1      BEGIN                                                                B1
BLOCK 1    LEVEL 1
          2      STRING ARRAY SPACE(132:1:58) $
          3      INTEGER H,R,A,C,I,J $
          4      REAL THETA,THETA1,THETA2,K,AO,AX,AY,VO,VX,VY,XO,YO,SS,PHI $
          5      FORMAT OUT(EO) ,
          6          BUG(X20,'TIME IS',D8.2,' THETA=',D5.2,' SS=',D7.2,' AX=',D4.2,
          7           ' AY=',D4.2,' VX=',D5.2,' VY=',D5.2,' XO=',D6.2,' YO=',D6.2,A1) ,
          8          B(34('X'),' H=',I2,' K=',I2,' R=',I2,' A=',I2,' C=',I2,' XO=',I2,
          9           ' YO=',I2,' VO=',R8.3,' PHI=',D3.1,34('X'),A1) $
BLOCK 2    LEVEL 2
         10      PROCEDURE EARTH $
         11      BEGIN                                                                B2
         12      FOR J=(3,1,95) DO
         13       FOR I=(1,1,132) DO
         14        IF (I-H)*(I-H)+(J-K)*(J-K) LSS R*R THEN SPACE(I:INTEGER(3/5*J))='*' $
       END BLOCK 2
         15      END EARTH $                                                          E2
BLOCK 3    LEVEL 2
         16      PROCEDURE ELLIPSE $
         17      BEGIN                                                                B3
         18      REAL T$
         19      IF H+2*C GEQ 1 AND H+2*C LEQ 132 AND K GEQ 3 AND K LEQ 95 THEN
         20       SPACE(H+2*C:INTEGER(3/5*K))='F' $
         21      IF H GEQ 1 AND H LEQ 132 AND K GEQ 3 AND K LEQ 95 THEN
         22       SPACE(H:INTEGER(3/5*K))='F' $
         23      FOR T=(0,.01,6.28) DO
         24       BEGIN                                                               B4
         25       I=ENTIER(A*COS(T)+H+C+.5) $
         26       J=INTEGER(3/5*(SQRT(A*A-C*C)*SIN(T)+K)) $
         27       IF I GEQ 1 AND I LEQ 132 AND J GEQ 2 AND J LEQ 57 THEN SPACE(I:J)='O' $
         28       END$                                                                E4
       END BLOCK 3
         29      END ELLIPSE $                                                        E3
BLOCK 4    LEVEL 2
         30      PROCEDURE TIME $ BEGIN                                               B5
```

```
          INTEGER H,S,M $
          FORMAT T('THE TIME IS= ',I2,':',I2,':',I2,A1) $
          H=CLOCK $
          S=MOD(H,60) $ H=(H-S)/60 $
          M=MOD(H,60) $ H=(H-M)/60 $
      END BLOCK 4
          WRITE(T,H,M,S) $ END $                                          E5
BLOCK 5     LEVEL 2
          PROCEDURE ORBIT $
          BEGIN                                                           B6
          INTEGER A$
          REAL T,D $
          THETA=THETA1=ARCTAN((Y0-K)/(X0-H)) $
          V0=V0*R/6.37&6 $ VX=-V0*SIN(THETA+PHI) $ VY=V0*COS(THETA+PHI) $

          FOR T=T+D WHILE T LSS 350  DO BEGIN                             B7
           THETA2=THETA1 $
           THETA1=ARCTAN((Y0-K)/(X0-H)) $
           IF ABS(THETA1) GTR 1 THEN BEGIN                                B8
            IF SIGN(THETA1) NEQ SIGN(THETA2) THEN THETA2=THETA1 $ END$    E8
           THETA=(3*THETA1-THETA2)/2 $
           THETA=IF X0-H GTR 0 THEN THETA
            ELSE IF Y0-K LSS 0 THEN THETA-3.1416 ELSE THETA+3.1416 $
           SS=(X0-H)**2+(Y0-K)**2 $
           D=SS/250/R $
           A0=-9.8*3600*R*R*R/SS/6.37&6 $

           AX=A0*COS(THETA) $ AY=A0*SIN(THETA) $
           VX=D*AX+VX $ VY=D*AY+VY $
           X0=(D/2*AX+VX)*D+X0 $ Y0=(D/2*AY+VY)*D+Y0 $

           IF X0 GEQ 1 AND X0 LEQ 132 AND Y0 GEQ 3 AND Y0 LEQ 95 THEN
            SPACE(INTEGER(X0):INTEGER(Y0*3/5))='M' $
          IF MOD(A,25) EQL 0 THEN
            WRITE(BUG,T,THETA,SS,100*AX,100*AY,VX,VY,X0,Y0) $
          A=A+1 $
          END$                                                            E7
          WRITE('     A IS',A) $
      END BLOCK 5
          END ORBIT $                                                     E6
BLOCK 6     LEVEL 2
          PROCEDURE WRICLE $
          BEGIN                                                           B9
          WRITE(OUT) $
          FOR J=(1,1,58) DO WRITE(SPACE(J)) $
          FOR I=(2,1,57) DO SPACE(I)=' ' $
      END BLOCK 6
          END WRICLE $                                                    E9
          FOR I=1,58 DO
           SPACE(2,131:I)=SPACE(1,132:I)='X' $
          FLYIT..
          READ(H,K,R,A,C,X0,Y0,V0,PHI) $
          WRITE(B,H,K,R,A,C,X0,Y0,V0,PHI) $
          A=A+C $
          EARTH $
          ELLIPSE $
          TIME $
          ORBIT $
```

```
 84        TIME $
 85        WRICLE $
 86        GO FLYIT $
 87        END                                                                    E1
END BLOCK 1


COMPILATION TIME FOR PHASE 1 WAS      1 SECOND(S)
COMPILATION TIME FOR PHASE 2 WAS      0 SECOND(S)
COMPILATION COMPLETE


@PN XQT,A MERCURY                                                    23 FEB 69    18:36:56.954
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX H=50 K=45 R=10 A=12 C=16 XO=38 YO=45 VO=5.45,+05 PHI=0.0XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
THE TIME IS= 18:36:59
                    TIME IS    0.00 THETA= 3.14 SS= 144.00 AX=3.85 AY= .00 VX=  .00 VY=  .86 XO= 38.00 YO= 45.05
                    TIME IS    1.44 THETA= 3.04 SS= 144.48 AX=3.81 AY=-.40 VX=  .06 VY=  .85 XO= 38.05 YO= 46.28
Partial             TIME IS    2.89 THETA= 2.93 SS= 146.10 AX=3.71 AY=-.78 VX=  .11 VY=  .84 XO= 38.17 YO= 47.51
                    TIME IS    4.37 THETA= 2.83 SS= 148.89 AX=3.54 AY=** -1.1342,+00 VX=  .17 VY=  .83 XO= 38.38 YO= 48.75
Ellipse 1           TIME IS    5.87 THETA= 2.73 SS= 152.92 AX=3.32 AY=** -1.4516,+00 VX=  .22 VY=  .81 XO= 38.67 YO= 49.98
                    TIME IS    7.43 THETA= 2.63 SS= 158.28 AX=3.05 AY=** -1.7230,+00 VX=  .27 VY=  .79 XO= 39.05 YO= 51.22
                    TIME IS    9.04 THETA= 2.52 SS= 165.12 AX=2.74 AY=** -1.9415,+00 VX=  .31 VY=  .76 XO= 39.53 YO= 52.47
                    TIME IS   10.73 THETA= 2.42 SS= 173.60 AX=2.40 AY=** -2.1029,+00 VX=  .36 VY=  .72 XO= 40.10 YO= 53.71
                    TIME IS   12.52 THETA= 2.32 SS= 183.95 AX=2.05 AY=** -2.2055,+00 VX=  .40 VY=  .68 XO= 40.78 YO= 54.97
                    TIME IS   14.41 THETA= 2.22 SS= 196.45 AX=1.70 AY=** -2.2504,+00 VX=  .43 VY=  .64 XO= 41.57 YO= 56.22
                    TIME IS   16.45 THETA= 2.12 SS= 211.44 AX=1.36 AY=** -2.2409,+00 VX=  .46 VY=  .59 XO= 42.48 YO= 57.47
                    TIME IS   18.65 THETA= 2.01 SS= 229.37 AX=1.03 AY=** -2.1825,+00 VX=  .49 VY=  .54 XO= 43.54 YO= 58.73
                    TIME IS   21.04 THETA= 1.91 SS= 250.75 AX= .74 AY=** -2.0824,+00 VX=  .51 VY=  .49 XO= 44.74 YO= 59.97
                    TIME IS   23.67 THETA= 1.81 SS= 276.23 AX= .47 AY=** -1.9486,+00 VX=  .53 VY=  .44 XO= 46.11 YO= 61.19
                    TIME IS   26.57 THETA= 1.71 SS= 306.59 AX= .24 AY=** -1.7899,+00 VX=  .54 VY=  .39 XO= 47.66 YO= 62.39
                    TIME IS   29.80 THETA= 1.60 SS= 342.76 AX= .05 AY=** -1.6149,+00 VX=  .54 VY=  .33 XO= 49.41 YO= 63.55
                    TIME IS   33.43 THETA= 1.50 SS= 385.86 AX=-.10 AY=** -1.4320,+00 VX=  .54 VY=  .28 XO= 51.38 YO= 64.64
                    TIME IS   37.53 THETA= 1.40 SS= 437.20 AX=-.21 AY=** -1.2485,+00 VX=  .53 VY=  .22 XO= 53.59 YO= 65.65
                    TIME IS   42.18 THETA= 1.30 SS= 498.24 AX=-.30 AY=** -1.0708,+00 VX=  .52 VY=  .17 XO= 56.05 YO= 66.55
                    TIME IS   47.50 THETA= 1.20 SS= 570.60 AX=-.35 AY=-.90 VX=  .50 VY=  .11 XO= 58.79 YO= 67.28
                    TIME IS   53.61 THETA= 1.10 SS= 655.92 AX=-.39 AY=-.75 VX=  .48 VY=  .06 XO= 61.80 YO= 67.81
                    TIME IS   60.63 THETA=  .99 SS= 755.71 AX=-.40 AY=-.61 VX=  .45 VY=  .02 XO= 65.08 YO= 68.08
                    TIME IS   68.73 THETA=  .89 SS= 870.97 AX=-.40 AY=-.50 VX=  .42 VY= -.03 XO= 68.62 YO= 68.00
                    TIME IS   78.06 THETA=  .79 SS=1001.78 AX=-.39 AY=-.39 VX=  .38 VY= -.07 XO= 72.37 YO= 67.52
                    TIME IS   88.76 THETA=  .69 SS=1146.65 AX=-.37 AY=-.31 VX=  .34 VY= -.11 XO= 76.24 YO= 66.54
                    TIME IS  100.96 THETA=  .59 SS=1301.74 AX=-.35 AY=-.24 VX=  .30 VY= -.14 XO= 80.13 YO= 65.00
                    TIME IS  114.74 THETA=  .49 SS=1460.30 AX=-.34 AY=-.18 VX=  .25 VY= -.17 XO= 83.89 YO= 62.84
                    TIME IS  130.09 THETA=  .39 SS=1612.35 AX=-.32 AY=-.13 VX=  .20 VY= -.19 XO= 87.31 YO= 60.05
                    TIME IS  146.87 THETA=  .28 SS=1745.35 AX=-.30 AY=-.09 VX=  .15 VY= -.21 XO= 90.18 YO= 56.65
                    TIME IS  164.84 THETA=  .18 SS=1845.79 AX=-.30 AY=-.05 VX=  .09 VY= -.22 XO= 92.30 YO= 52.74
                    TIME IS  183.61 THETA=  .08 SS=1901.87 AX=-.29 AY=-.02 VX=  .04 VY= -.23 XO= 93.49 YO= 48.48
                    TIME IS  202.69 THETA= -.02 SS=1906.34 AX=-.29 AY= .01 VX= -.02 VY= -.23 XO= 93.64 YO= 44.07
                    TIME IS  221.57 THETA= -.12 SS=1858.50 AX=-.30 AY= .04 VX= -.07 VY= -.23 XO= 92.75 YO= 39.74
                    TIME IS  239.73 THETA= -.22 SS=1764.43 AX=-.31 AY= .07 VX= -.13 VY= -.22 XO= 90.91 YO= 35.71
                    TIME IS  256.78 THETA= -.32 SS=1635.28 AX=-.32 AY= .11 VX= -.18 VY= -.20 XO= 88.26 YO= 32.14
                    TIME IS  272.42 THETA= -.42 SS=1484.53 AX=-.34 AY= .15 VX= -.23 VY= -.18 XO= 85.02 YO= 29.14
                    TIME IS  286.51 THETA= -.52 SS=1325.17 AX=-.36 AY= .21 VX= -.28 VY= -.16 XO= 81.40 YO= 26.76
                    TIME IS  299.00 THETA= -.62 SS=1167.81 AX=-.38 AY= .28 VX= -.33 VY= -.13 XO= 77.60 YO= 25.01
                    TIME IS  309.95 THETA= -.73 SS=1019.88 AX=-.41 AY= .36 VX= -.37 VY= -.09 XO= 73.78 YO= 23.82
                    TIME IS  319.50 THETA= -.83 SS= 885.70 AX=-.42 AY= .46 VX= -.41 VY= -.05 XO= 70.06 YO= 23.13
                    TIME IS  327.77 THETA= -.93 SS= 767.14 AX=-.43 AY= .58 VX= -.45 VY= -.01 XO= 66.53 YO= 22.88
                    TIME IS  334.94 THETA=-1.03 SS= 664.34 AX=-.43 AY= .71 VX= -.48 VY=  .04 XO= 63.24 YO= 22.97
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                    TIME IS  341.15 THETA=-1.13 SS= 576.36 AX=-.41 AY= .87 VX= -.50 VY=  .08 XO= 60.21 YO= 23.35
                    TIME IS  346.54 THETA=-1.23 SS= 501.72 AX=-.37 AY=1.04 VX= -.52 VY=  .14 XO= 57.46 YO= 23.94
    A IS            1094
THE TIME IS= 18:37: 0
```

Partial

Ellipse 2

Partial
Ellipse

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                                  OOOOOOOOOOOO
                             OOOMMMMMMMMMMMMMMMMMMMOOO
                         OOOO MM                  MMMMMOO
                      OOO                              MMMMO
                    OOO                                   MMMO
                  OOO                                       MMMO
                 OO                                           MMO
              OO                                                MMO
             OO                                                  MMO
             O    ***********                                     MM
            O    ***************                                   MM
           OO   *****************                                   MO
           O   *******************                                   MO
           O   *******************                                   MM
           M   *********F*********                          F         M
           M   *******************                                    M
           M   *******************                                    MM
           MM   *****************                                     M
            MM   ***************                                     MM
             M    ***********                                        M
             MM                                                     MM
              MM                                                   MM
                MM                                                MMM
                  MMM                                           OMM
                    MMM                                       MMM
                      MMM                                   MMM
                        MMMM                            MMMMM
                            MMMMMMM                OMMMMMM
                                MMMMMMMMMMMMMM
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XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX H=60 K=45 R=10 A=22 C= 0 XO=38 YO=45 VO=3.20,+05 PHI=0.0XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

THE TIME IS= 18:37: 1

Circular 1

```
TIME IS    0.00 THETA= 3.14 SS= 484.00 AX=1.14 AY= .00 VX=  .00 VY=  .50 XO= 38.00 YO= 45.10
TIME IS    4.84 THETA= 3.03 SS= 483.54 AX=1.14 AY=-.13 VX=  .06 VY=  .50 XO= 38.16 YO= 47.52
TIME IS    9.67 THETA= 2.92 SS= 483.09 AX=1.12 AY=-.25 VX=  .11 VY=  .49 XO= 38.58 YO= 49.91
TIME IS   14.50 THETA= 2.81 SS= 482.66 AX=1.08 AY=-.38 VX=  .17 VY=  .47 XO= 39.26 YO= 52.24
TIME IS   19.32 THETA= 2.70 SS= 482.23 AX=1.04 AY=-.49 VX=  .22 VY=  .45 XO= 40.19 YO= 54.47
TIME IS   24.14 THETA= 2.59 SS= 481.80 AX= .98 AY=-.60 VX=  .26 VY=  .43 XO= 41.36 YO= 56.59
TIME IS   28.96 THETA= 2.48 SS= 481.36 AX= .91 AY=-.71 VX=  .31 VY=  .39 XO= 42.75 YO= 58.56
TIME IS   33.77 THETA= 2.37 SS= 480.90 AX= .82 AY=-.81 VX=  .35 VY=  .36 XO= 44.36 YO= 60.37
TIME IS   38.58 THETA= 2.26 SS= 480.43 AX= .73 AY=-.89 VX=  .39 VY=  .32 XO= 46.15 YO= 61.98
TIME IS   43.38 THETA= 2.15 SS= 479.93 AX= .63 AY=-.97 VX=  .42 VY=  .27 XO= 48.10 YO= 63.39
TIME IS   48.18 THETA= 2.04 SS= 479.40 AX= .52 AY=** -1.0319,+00 VX=  .45 VY=  .22 XO= 50.20 YO= 64.58
TIME IS   52.97 THETA= 1.93 SS= 478.83 AX= .40 AY=** -1.0839,+00 VX=  .47 VY=  .17 XO= 52.41 YO= 65.52
TIME IS   57.75 THETA= 1.82 SS= 478.23 AX= .28 AY=** -1.1231,+00 VX=  .49 VY=  .12 XO= 54.71 YO= 66.22
TIME IS   62.53 THETA= 1.71 SS= 477.58 AX= .16 AY=** -1.1489,+00 VX=  .50 VY=  .07 XO= 57.07 YO= 66.66
TIME IS   67.31 THETA= 1.60 SS= 476.89 AX= .03 AY=** -1.1609,+00 VX=  .50 VY=  .01 XO= 59.46 YO= 66.83
TIME IS   72.07 THETA= 1.49 SS= 476.15 AX=-.10 AY=** -1.1592,+00 VX=  .50 VY= -.04 XO= 61.85 YO= 66.74
TIME IS   76.83 THETA= 1.38 SS= 475.36 AX=-.22 AY=** -1.1436,+00 VX=  .49 VY= -.10 XO= 64.21 YO= 66.39
TIME IS   81.58 THETA= 1.27 SS= 474.52 AX=-.35 AY=** -1.1144,+00 VX=  .48 VY= -.15 XO= 66.52 YO= 65.78
TIME IS   86.32 THETA= 1.16 SS= 473.63 AX=-.47 AY=** -1.0718,+00 VX=  .46 VY= -.20 XO= 68.75 YO= 64.93
TIME IS   91.05 THETA= 1.05 SS= 472.68 AX=-.58 AY=** -1.0162,+00 VX=  .43 VY= -.25 XO= 70.86 YO= 63.83
TIME IS   95.77 THETA=  .94 SS= 471.69 AX=-.69 AY=-.95 VX=  .40 VY= -.30 XO= 72.84 YO= 62.51
TIME IS  100.49 THETA=  .83 SS= 470.65 AX=-.79 AY=-.87 VX=  .37 VY= -.34 XO= 74.66 YO= 60.99
TIME IS  105.19 THETA=  .72 SS= 469.56 AX=-.89 AY=-.78 VX=  .33 VY= -.38 XO= 76.30 YO= 59.28
TIME IS  109.88 THETA=  .61 SS= 468.42 AX=-.97 AY=-.68 VX=  .29 VY= -.42 XO= 77.74 YO= 57.40
TIME IS  114.56 THETA=  .50 SS= 467.25 AX=** -1.0385,+00 AY=-.57 VX=  .24 VY= -.44 XO= 78.96 YO= 55.38
TIME IS  119.22 THETA=  .39 SS= 466.04 AX=** -1.0974,+00 AY=-.46 VX=  .19 VY= -.47 XO= 79.95 YO= 53.24
TIME IS  123.88 THETA=  .28 SS= 464.79 AX=** -1.1436,+00 AY=-.33 VX=  .14 VY= -.49 XO= 80.70 YO= 51.01
TIME IS  128.52 THETA=  .18 SS= 463.52 AX=** -1.1765,+00 AY=-.21 VX=  .08 VY= -.50 XO= 81.21 YO= 48.72
TIME IS  133.15 THETA=  .07 SS= 462.23 AX=** -1.1956,+00 AY=-.08 VX=  .03 VY= -.51 XO= 81.45 YO= 46.38
TIME IS  137.76 THETA= -.04 SS= 460.91 AX=** -1.2005,+00 AY= .05 VX= -.03 VY= -.51 XO= 81.45 YO= 44.04
TIME IS  142.37 THETA= -.15 SS= 459.59 AX=** -1.1913,+00 AY= .18 VX= -.08 VY= -.50 XO= 81.18 YO= 41.72
TIME IS  146.96 THETA= -.26 SS= 458.26 AX=** -1.1679,+00 AY= .31 VX= -.14 VY= -.49 XO= 80.67 YO= 39.45
TIME IS  151.53 THETA= -.37 SS= 456.93 AX=** -1.1305,+00 AY= .44 VX= -.19 VY= -.47 XO= 79.92 YO= 37.25
TIME IS  156.09 THETA= -.48 SS= 455.60 AX=** -1.0795,+00 AY= .56 VX= -.24 VY= -.45 XO= 78.93 YO= 35.15
TIME IS  160.64 THETA= -.59 SS= 454.28 AX=** -1.0154,+00 AY= .67 VX= -.29 VY= -.42 XO= 77.73 YO= 33.17
TIME IS  165.18 THETA= -.70 SS= 452.97 AX=-.94 AY= .78 VX= -.33 VY= -.39 XO= 76.31 YO= 31.33
TIME IS  169.70 THETA= -.80 SS= 451.69 AX=-.85 AY= .88 VX= -.37 VY= -.35 XO= 74.72 YO= 29.67
TIME IS  174.21 THETA= -.91 SS= 450.43 AX=-.75 AY= .97 VX= -.41 VY= -.31 XO= 72.95 YO= 28.19
TIME IS  178.71 THETA=-1.02 SS= 449.20 AX=-.64 AY=1.05 VX= -.44 VY= -.26 XO= 71.04 YO= 26.91
TIME IS  183.20 THETA=-1.13 SS= 448.00 AX=-.53 AY=1.12 VX= -.47 VY= -.21 XO= 69.00 YO= 25.84
TIME IS  187.67 THETA=-1.24 SS= 446.84 AX=-.41 AY=1.17 VX= -.49 VY= -.16 XO= 66.87 YO= 25.01
TIME IS  192.14 THETA=-1.35 SS= 445.73 AX=-.28 AY=1.21 VX= -.50 VY= -.11 XO= 64.66 YO= 24.41
TIME IS  196.59 THETA=-1.45 SS= 444.65 AX=-.14 AY=1.24 VX= -.51 VY= -.06 XO= 62.40 YO= 24.05
TIME IS  201.03 THETA=-1.56 SS= 443.62 AX=-.01 AY=1.25 VX= -.51 VY=  .00 XO= 60.13 YO= 23.94
TIME IS  205.46 THETA=-1.67 SS= 442.64 AX= .13 AY=1.24 VX= -.51 VY=  .06 XO= 57.85 YO= 24.07
TIME IS  209.88 THETA=-1.78 SS= 441.71 AX= .26 AY=1.23 VX= -.50 VY=  .11 XO= 55.61 YO= 24.45
TIME IS  214.30 THETA=-1.89 SS= 440.82 AX= .39 AY=1.19 VX= -.49 VY=  .16 XO= 53.42 YO= 25.06
TIME IS  218.70 THETA=-2.00 SS= 439.99 AX= .52 AY=1.15 VX= -.47 VY=  .22 XO= 51.32 YO= 25.90
TIME IS  223.10 THETA=-2.10 SS= 439.21 AX= .64 AY=1.09 VX= -.44 VY=  .26 XO= 49.32 YO= 26.97
TIME IS  227.49 THETA=-2.21 SS= 438.48 AX= .75 AY=1.01 VX= -.41 VY=  .31 XO= 47.45 YO= 28.24
TIME IS  231.87 THETA=-2.32 SS= 437.79 AX= .86 AY= .93 VX= -.38 VY=  .35 XO= 45.73 YO= 29.70
TIME IS  236.24 THETA=-2.43 SS= 437.15 AX= .96 AY= .83 VX= -.34 VY=  .39 XO= 44.18 YO= 31.33
TIME IS  240.61 THETA=-2.53 SS= 436.55 AX=1.04 AY= .72 VX= -.29 VY=  .42 XO= 42.81 YO= 33.12
TIME IS  244.97 THETA=-2.64 SS= 436.00 AX=1.12 AY= .61 VX= -.25 VY=  .45 XO= 41.64 YO= 35.05
TIME IS  249.33 THETA=-2.75 SS= 435.48 AX=1.18 AY= .49 VX= -.20 VY=  .48 XO= 40.69 YO= 37.08
TIME IS  253.68 THETA=-2.86 SS= 435.00 AX=1.22 AY= .36 VX= -.14 VY=  .50 XO= 39.96 YO= 39.21
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Circular 2

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TIME IS  258.03 THETA=-2.97 SS= 434.54 AX=1.25 AY= .22 VX= -.09 VY=  .51 XO= 39.47 YO= 41.39
TIME IS  262.37 THETA=-3.07 SS= 434.12 AX=1.27 AY= .09 VX= -.03 VY=  .51 XO= 39.21 YO= 43.62
TIME IS  266.71 THETA= 3.10 SS= 433.71 AX=1.28 AY=-.05 VX=  .02 VY=  .52 XO= 39.19 YO= 45.86
TIME IS  271.05 THETA= 3.00 SS= 433.32 AX=1.26 AY=-.19 VX=  .08 VY=  .51 XO= 39.41 YO= 48.08
TIME IS  275.38 THETA= 2.89 SS= 432.95 AX=1.24 AY=-.32 VX=  .13 VY=  .50 XO= 39.87 YO= 50.27
TIME IS  279.71 THETA= 2.78 SS= 432.58 AX=1.20 AY=-.45 VX=  .18 VY=  .48 XO= 40.56 YO= 52.39
TIME IS  284.03 THETA= 2.67 SS= 432.21 AX=1.14 AY=-.58 VX=  .23 VY=  .46 XO= 41.47 YO= 54.43
TIME IS  288.35 THETA= 2.57 SS= 431.84 AX=1.08 AY=-.70 VX=  .28 VY=  .43 XO= 42.59 YO= 56.35
TIME IS  292.67 THETA= 2.46 SS= 431.46 AX=1.00 AY=-.81 VX=  .33 VY=  .40 XO= 43.92 YO= 58.14
TIME IS  296.98 THETA= 2.35 SS= 431.07 AX= .90 AY=-.91 VX=  .37 VY=  .36 XO= 45.42 YO= 59.78
TIME IS  301.29 THETA= 2.24 SS= 430.66 AX= .80 AY=** -1.0052,+00 VX=  .40 VY=  .32 XO= 47.09 YO= 61.25
TIME IS  305.59 THETA= 2.14 SS= 430.24 AX= .69 AY=** -1.0863,+00 VX=  .44 VY=  .28 XO= 48.91 YO= 62.53
TIME IS  309.89 THETA= 2.03 SS= 429.78 AX= .57 AY=** -1.1550,+00 VX=  .46 VY=  .23 XO= 50.85 YO= 63.60
TIME IS  314.19 THETA= 1.92 SS= 429.30 AX= .45 AY=** -1.2108,+00 VX=  .49 VY=  .18 XO= 52.89 YO= 64.46
TIME IS  318.48 THETA= 1.82 SS= 428.79 AX= .31 AY=** -1.2529,+00 VX=  .50 VY=  .12 XO= 55.01 YO= 65.10
TIME IS  322.77 THETA= 1.71 SS= 428.24 AX= .18 AY=** -1.2809,+00 VX=  .51 VY=  .07 XO= 57.18 YO= 65.50
TIME IS  327.04 THETA= 1.60 SS= 427.65 AX= .04 AY=** -1.2944,+00 VX=  .52 VY=  .01 XO= 59.39 YO= 65.67
TIME IS  331.32 THETA= 1.50 SS= 427.02 AX=-.10 AY=** -1.2934,+00 VX=  .51 VY= -.04 XO= 61.59 YO= 65.60
TIME IS  335.59 THETA= 1.39 SS= 426.36 AX=-.23 AY=** -1.2776,+00 VX=  .51 VY= -.10 XO= 63.77 YO= 65.30
TIME IS  339.85 THETA= 1.28 SS= 425.65 AX=-.37 AY=** -1.2475,+00 VX=  .49 VY= -.15 XO= 65.91 YO= 64.77
TIME IS  344.10 THETA= 1.18 SS= 424.90 AX=-.50 AY=** -1.2031,+00 VX=  .48 VY= -.20 XO= 67.97 YO= 64.01
TIME IS  348.34 THETA= 1.07 SS= 424.10 AX=-.63 AY=** -1.1451,+00 VX=  .45 VY= -.25 XO= 69.94 YO= 63.04
A IS          1935
THE TIME IS= 18:37: 3
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Circular

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                    OOOOMMMMMMOOOO
                 OOMMMMMMM     MMMMMMMOO
              OOMMM                MMMMO
            OMMM                     MMMO
           OOMM                       MMMO
          OMMM                         MMO
         OMM                           MMO
        OMM                            MMO
       OOM          ***********        MMO
       OMM        ***************       MM
     OOM          *****************      MO
     OMM        ******************       MO
     OM         ******************       MO
     MM         *********F********       MO
     MM         ******************       MO
     MMM        ******************       MO
     MMM         ****************        MO
      MMM         ***************        MM
      MMM           ***********          MO
       MMM                               MM
        MMM                             MM
         MMMM                          MMM
          MMMMM                       MMO
            MMMMM                    MMM
              MMMMMM              MMMMMM
                MMMMMMMMMMMMMMMMMMMMMMMMO
                   MMMMMMMMMMMMMMMMO
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XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX H=60 K=45 R=10 A=22 C=**  2.0000,+02 XO=38 YO=45 VO=4.52,+05 PHI=0.0XXXXXXXXXXXXXXXXXXXXXXXXXXXX
THE TIME IS= 18:37: 4
                    TIME IS    0.00 THETA= 3.14 SS= 484.00 AX=1.14 AY= .00 VX=  .00 VY=  .71 XO= 38.00 YO= 45.14
                    TIME IS    4.86 THETA= 2.98 SS= 489.48 AX=1.12 AY=-.18 VX=  .06 VY=  .71 XO= 38.16 YO= 48.58
                    TIME IS    9.83 THETA= 2.83 SS= 507.33 AX=1.04 AY=-.34 VX=  .11 VY=  .69 XO= 38.59 YO= 52.06
                    TIME IS   15.04 THETA= 2.67 SS= 539.08 AX= .92 AY=-.47 VX=  .16 VY=  .67 XO= 39.32 YO= 55.62
                    TIME IS   20.65 THETA= 2.51 SS= 587.65 AX= .76 AY=-.55 VX=  .21 VY=  .64 XO= 40.37 YO= 59.31
                    TIME IS   26.84 THETA= 2.36 SS= 657.84 AX= .60 AY=-.59 VX=  .25 VY=  .61 XO= 41.82 YO= 63.19
                    TIME IS   33.87 THETA= 2.20 SS= 757.33 AX= .43 AY=-.59 VX=  .29 VY=  .56 XO= 43.74 YO= 67.31
                    TIME IS   42.08 THETA= 2.05 SS= 898.31 AX= .28 AY=-.55 VX=  .32 VY=  .52 XO= 46.25 YO= 71.76
                    TIME IS   51.97 THETA= 1.89 SS=1100.58 AX= .16 AY=-.48 VX=  .34 VY=  .47 XO= 49.53 YO= 76.64
                    TIME IS   64.30 THETA= 1.74 SS=1397.24 AX= .07 AY=-.39 VX=  .35 VY=  .41 XO= 53.84 YO= 82.06
                    TIME IS   80.27 THETA= 1.58 SS=1845.84 AX= .00 AY=-.30 VX=  .36 VY=  .36 XO= 59.56 YO= 88.22
                    TIME IS  101.83 THETA= 1.43 SS=2551.34 AX=-.03 AY=-.21 VX=  .35 VY=  .30 XO= 67.30 YO= 95.34
                    TIME IS  132.43 THETA= 1.28 SS=3716.63 AX=-.04 AY=-.14 VX=  .34 VY=  .25 XO= 78.04 YO=103.75
                    TIME IS  178.41 THETA= 1.12 SS=5761.98 AX=-.04 AY=-.09 VX=  .32 VY=  .20 XO= 93.43 YO=113.96
                    TIME IS  252.44 THETA=  .97 SS=9634.47 AX=-.03 AY=-.05 VX=  .29 VY=  .15 XO=116.41 YO=126.67
    A IS             371
THE TIME IS= 18:37: 4
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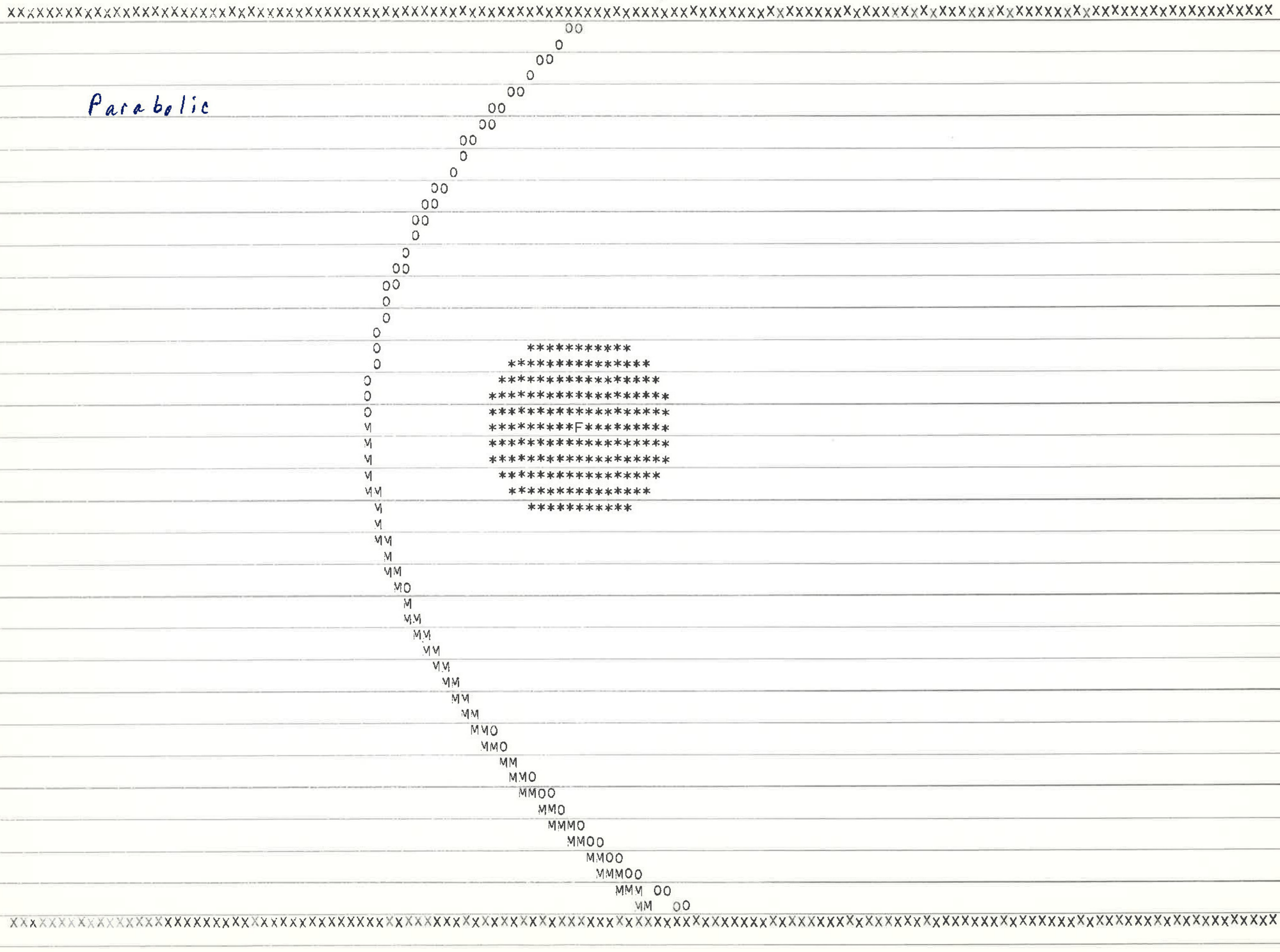
Parabolic

Parabolic



XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX H=70 K=45 R=10 A=42 C=** -1.6000,+01 XO=31 YO=45 VO=1.41,+05 PHI=0.0XXXXXXXXXXXXXXXXXXXXXXXXXXXX

THE TIME IS= 18:37: 5

Elliptical -1

```
TIME IS    0.00 THETA= 3.14 SS=1521.00 AX= .36 AY= .00 VX=  .00 VY=  .22 XO= 31.00 YO= 45.13
TIME IS   15.13 THETA= 3.05 SS=1497.14 AX= .37 AY=-.03 VX=  .06 VY=  .22 XO= 31.49 YO= 48.47
TIME IS   29.83 THETA= 2.97 SS=1433.75 AX= .38 AY=-.07 VX=  .11 VY=  .21 XO= 32.76 YO= 51.62
TIME IS   43.73 THETA= 2.88 SS=1338.53 AX= .40 AY=-.11 VX=  .17 VY=  .20 XO= 34.72 YO= 54.47
TIME IS   56.57 THETA= 2.79 SS=1221.89 AX= .43 AY=-.15 VX=  .22 VY=  .18 XO= 37.21 YO= 56.91
TIME IS   68.18 THETA= 2.71 SS=1094.61 AX= .46 AY=-.21 VX=  .27 VY=  .16 XO= 40.06 YO= 58.90
TIME IS   78.51 THETA= 2.62 SS= 966.04 AX= .50 AY=-.28 VX=  .32 VY=  .14 XO= 43.11 YO= 60.43
TIME IS   87.57 THETA= 2.54 SS= 843.13 AX= .54 AY=-.37 VX=  .37 VY=  .11 XO= 46.22 YO= 61.52
TIME IS   95.45 THETA= 2.45 SS= 730.27 AX= .58 AY=-.48 VX=  .41 VY=  .07 XO= 49.27 YO= 62.22
TIME IS  102.26 THETA= 2.36 SS= 629.65 AX= .63 AY=-.62 VX=  .45 VY=  .04 XO= 52.20 YO= 62.58
TIME IS  108.13 THETA= 2.28 SS= 541.84 AX= .66 AY=-.78 VX=  .49 VY= -.00 XO= 54.95 YO= 62.67
TIME IS  113.17 THETA= 2.19 SS= 466.37 AX= .69 AY=-.97 VX=  .52 VY= -.05 XO= 57.49 YO= 62.53
TIME IS  117.52 THETA= 2.11 SS= 402.18 AX= .70 AY=** -1.1843,+00 VX=  .55 VY= -.09 XO= 59.83 YO= 62.21
TIME IS  121.27 THETA= 2.02 SS= 347.93 AX= .69 AY=** -1.4336,+00 VX=  .58 VY= -.14 XO= 61.94 YO= 61.76
TIME IS  124.53 THETA= 1.93 SS= 302.28 AX= .65 AY=** -1.7123,+00 VX=  .60 VY= -.19 XO= 63.86 YO= 61.21
TIME IS  127.36 THETA= 1.85 SS= 263.92 AX= .58 AY=** -2.0179,+00 VX=  .62 VY= -.25 XO= 65.58 YO= 60.59
TIME IS  129.84 THETA= 1.76 SS= 231.70 AX= .46 AY=** -2.3462,+00 VX=  .63 VY= -.30 XO= 67.12 YO= 59.91
TIME IS  132.02 THETA= 1.68 SS= 204.62 AX= .29 AY=** -2.6913,+00 VX=  .64 VY= -.36 XO= 68.50 YO= 59.19
TIME IS  133.96 THETA= 1.59 SS= 181.82 AX= .06 AY=** -3.0454,+00 VX=  .64 VY= -.41 XO= 69.74 YO= 58.45
TIME IS  135.68 THETA= 1.51 SS= 162.59 AX=-.22 AY=** -3.3994,+00 VX=  .64 VY= -.47 XO= 70.84 YO= 57.70
TIME IS  137.22 THETA= 1.42 SS= 146.32 AX=-.57 AY=** -3.7426,+00 VX=  .64 VY= -.52 XO= 71.83 YO= 56.93
TIME IS  138.62 THETA= 1.34 SS= 132.53 AX=-.98 AY=** -4.0634,+00 VX=  .63 VY= -.58 XO= 72.70 YO= 56.17
TIME IS  139.89 THETA= 1.25 SS= 120.82 AX=** -1.4473,+00 AY=** -4.3495,+00 VX=  .61 VY= -.63 XO= 73.48 YO= 55.41
TIME IS  141.05 THETA= 1.16 SS= 110.85 AX=** -1.9764,+00 AY=** -4.5886,+00 VX=  .59 VY= -.68 XO= 74.17 YO= 54.65
TIME IS  142.11 THETA= 1.08 SS= 102.36 AX=** -2.5567,+00 AY=** -4.7686,+00 VX=  .57 VY= -.73 XO= 74.79 YO= 53.89
TIME IS  143.10 THETA=  .99 SS=  95.12 AX=** -3.1793,+00 AY=** -4.8783,+00 VX=  .54 VY= -.78 XO= 75.33 YO= 53.15
TIME IS  144.02 THETA=  .91 SS=  88.94 AX=** -3.8327,+00 AY=** -4.9082,+00 VX=  .51 VY= -.82 XO= 75.81 YO= 52.41
TIME IS  144.88 THETA=  .82 SS=  83.68 AX=** -4.5037,+00 AY=** -4.8505,+00 VX=  .47 VY= -.87 XO= 76.23 YO= 51.69
TIME IS  145.70 THETA=  .74 SS=  79.21 AX=** -5.1771,+00 AY=** -4.6999,+00 VX=  .43 VY= -.90 XO= 76.59 YO= 50.96
TIME IS  146.47 THETA=  .65 SS=  75.43 AX=** -5.8369,+00 AY=** -4.4540,+00 VX=  .39 VY= -.94 XO= 76.91 YO= 50.25
TIME IS  147.21 THETA=  .57 SS=  72.27 AX=** -6.4663,+00 AY=** -4.1131,+00 VX=  .34 VY= -.97 XO= 77.18 YO= 49.55
TIME IS  147.92 THETA=  .48 SS=  69.65 AX=** -7.0487,+00 AY=** -3.6810,+00 VX=  .29 VY=-1.00 XO= 77.40 YO= 48.85
TIME IS  148.61 THETA=  .40 SS=  67.52 AX=** -7.5679,+00 AY=** -3.1644,+00 VX=  .24 VY=-1.02 XO= 77.58 YO= 48.16
TIME IS  149.27 THETA=  .31 SS=  65.83 AX=** -8.0095,+00 AY=** -2.5731,+00 VX=  .19 VY=-1.04 XO= 77.73 YO= 47.47
TIME IS  149.93 THETA=  .23 SS=  64.57 AX=** -8.3606,+00 AY=** -1.9193,+00 VX=  .14 VY=-1.06 XO= 77.83 YO= 46.78
TIME IS  150.57 THETA=  .14 SS=  63.68 AX=** -8.6110,+00 AY=** -1.2179,+00 VX=  .08 VY=-1.07 XO= 77.90 YO= 46.10
TIME IS  151.20 THETA=  .06 SS=  63.18 AX=** -8.7532,+00 AY=-.49 VX=  .03 VY=-1.07 XO= 77.94 YO= 45.43
TIME IS  151.83 THETA= -.03 SS=  63.03 AX=** -8.7830,+00 AY= .26 VX= -.03 VY=-1.07 XO= 77.94 YO= 44.75
TIME IS  152.46 THETA= -.11 SS=  63.24 AX=** -8.6996,+00 AY=1.00 VX= -.08 VY=-1.07 XO= 77.90 YO= 44.08
TIME IS  153.10 THETA= -.20 SS=  63.82 AX=** -8.5054,+00 AY=1.72 VX= -.14 VY=-1.06 XO= 77.83 YO= 43.40
TIME IS  153.74 THETA= -.28 SS=  64.77 AX=** -8.2064,+00 AY=2.40 VX= -.19 VY=-1.05 XO= 77.72 YO= 42.72
TIME IS  154.39 THETA= -.37 SS=  66.11 AX=** -7.8113,+00 AY=3.03 VX= -.24 VY=-1.03 XO= 77.58 YO= 42.05
TIME IS  155.06 THETA= -.45 SS=  67.86 AX=** -7.3316,+00 AY=3.59 VX= -.29 VY=-1.01 XO= 77.40 YO= 41.37
TIME IS  155.75 THETA= -.54 SS=  70.06 AX=** -6.7810,+00 AY=4.06 VX= -.34 VY= -.98 XO= 77.18 YO= 40.68
TIME IS  156.46 THETA= -.62 SS=  72.75 AX=** -6.1748,+00 AY=4.45 VX= -.39 VY= -.95 XO= 76.92 YO= 40.00
TIME IS  157.21 THETA= -.71 SS=  75.98 AX=** -5.5293,+00 AY=4.75 VX= -.43 VY= -.91 XO= 76.61 YO= 39.30
TIME IS  157.98 THETA= -.79 SS=  79.82 AX=** -4.8610,+00 AY=4.95 VX= -.47 VY= -.88 XO= 76.26 YO= 38.61
TIME IS  158.80 THETA= -.88 SS=  84.35 AX=** -4.1864,+00 AY=5.06 VX= -.51 VY= -.83 XO= 75.85 YO= 37.91
TIME IS  159.67 THETA= -.96 SS=  89.67 AX=** -3.5209,+00 AY=5.07 VX= -.54 VY= -.79 XO= 75.39 YO= 37.20
TIME IS  160.60 THETA=-1.05 SS=  95.89 AX=** -2.8788,+00 AY=5.01 VX= -.57 VY= -.74 XO= 74.87 YO= 36.49
TIME IS  161.59 THETA=-1.13 SS= 103.16 AX=** -2.2723,+00 AY=4.86 VX= -.60 VY= -.69 XO= 74.29 YO= 35.78
TIME IS  162.66 THETA=-1.22 SS= 111.64 AX=** -1.7116,+00 AY=4.66 VX= -.62 VY= -.64 XO= 73.63 YO= 35.06
TIME IS  163.82 THETA=-1.30 SS= 121.56 AX=** -1.2045,+00 AY=4.39 VX= -.64 VY= -.59 XO= 72.90 YO= 34.34
TIME IS  165.09 THETA=-1.39 SS= 133.16 AX=-.76 AY=4.09 VX= -.65 VY= -.54 XO= 72.08 YO= 33.63
TIME IS  166.49 THETA=-1.47 SS= 146.74 AX=-.37 AY=3.76 VX= -.66 VY= -.48 XO= 71.17 YO= 32.92
TIME IS  168.03 THETA=-1.56 SS= 162.66 AX=-.05 AY=3.40 VX= -.66 VY= -.43 XO= 70.15 YO= 32.22
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Elliptical 2

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TIME IS  169.74 THETA=-1.64 SS= 181.37 AX= .22 AY=3.05 VX= -.66 VY= -.37 XO= 69.02 YO= 31.54
TIME IS  171.66 THETA=-1.73 SS= 203.37 AX= .42 AY=2.69 VX= -.65 VY= -.32 XO= 67.76 YO= 30.88
TIME IS  173.82 THETA=-1.81 SS= 229.27 AX= .57 AY=2.35 VX= -.64 VY= -.26 XO= 66.37 YO= 30.26
TIME IS  176.25 THETA=-1.90 SS= 259.77 AX= .68 AY=2.02 VX= -.62 VY= -.21 XO= 64.82 YO= 29.69
TIME IS  179.02 THETA=-1.98 SS= 295.67 AX= .74 AY=1.72 VX= -.60 VY= -.16 XO= 63.12 YO= 29.19
TIME IS  182.17 THETA=-2.06 SS= 337.83 AX= .78 AY=1.44 VX= -.58 VY= -.11 XO= 61.24 YO= 28.78
TIME IS  185.78 THETA=-2.15 SS= 387.17 AX= .78 AY=1.20 VX= -.55 VY= -.06 XO= 59.20 YO= 28.49
TIME IS  189.92 THETA=-2.23 SS= 444.56 AX= .77 AY= .98 VX= -.52 VY= -.01 XO= 56.97 YO= 28.35
TIME IS  194.67 THETA=-2.32 SS= 510.73 AX= .74 AY= .80 VX= -.48 VY=  .03 XO= 54.59 YO= 28.39
TIME IS  200.13 THETA=-2.40 SS= 586.04 AX= .70 AY= .64 VX= -.44 VY=  .07 XO= 52.05 YO= 28.66
TIME IS  206.39 THETA=-2.49 SS= 670.24 AX= .65 AY= .50 VX= -.40 VY=  .10 XO= 49.40 YO= 29.20
TIME IS  213.53 THETA=-2.57 SS= 762.14 AX= .61 AY= .39 VX= -.36 VY=  .13 XO= 46.70 YO= 30.06
TIME IS  221.61 THETA=-2.65 SS= 859.24 AX= .57 AY= .30 VX= -.31 VY=  .16 XO= 44.02 YO= 31.27
TIME IS  230.68 THETA=-2.74 SS= 957.49 AX= .53 AY= .23 VX= -.26 VY=  .19 XO= 41.47 YO= 32.87
TIME IS  240.71 THETA=-2.82 SS=1051.18 AX= .50 AY= .17 VX= -.21 VY=  .20 XO= 39.15 YO= 34.85
TIME IS  251.63 THETA=-2.91 SS=1133.38 AX= .48 AY= .11 VX= -.15 VY=  .22 XO= 37.21 YO= 37.19
TIME IS  263.29 THETA=-2.99 SS=1196.71 AX= .46 AY= .07 VX= -.10 VY=  .23 XO= 35.77 YO= 39.83
TIME IS  275.46 THETA=-3.07 SS=1234.66 AX= .45 AY= .03 VX= -.04 VY=  .24 XO= 34.93 YO= 42.68
TIME IS  287.87 THETA= 3.13 SS=1242.94 AX= .45 AY=-.01 VX=  .01 VY=  .24 XO= 34.75 YO= 45.63
TIME IS  300.22 THETA= 3.04 SS=1220.56 AX= .45 AY=-.05 VX=  .07 VY=  .23 XO= 35.27 YO= 48.55
TIME IS  312.20 THETA= 2.96 SS=1170.03 AX= .47 AY=-.09 VX=  .12 VY=  .23 XO= 36.42 YO= 51.31
TIME IS  323.57 THETA= 2.87 SS=1096.79 AX= .49 AY=-.13 VX=  .18 VY=  .21 XO= 38.13 YO= 53.81
TIME IS  334.12 THETA= 2.79 SS=1007.92 AX= .52 AY=-.19 VX=  .23 VY=  .20 XO= 40.27 YO= 55.97
TIME IS  343.73 THETA= 2.71 SS= 910.81 AX= .55 AY=-.26 VX=  .28 VY=  .18 XO= 42.72 YO= 57.75
A IS     1993
THE TIME IS= 18:37: 7
```

Elliptical

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                    0000000000000000000
                 00000                 00000
              000          MMMMMMMMMMMMM     0000
           000         MMMMMM              MMMMMM  000
        000       MMMM                        MMMM 00
      00       MMM                             MMM 00
     00      MMM                                MM 00
    00      MM                               *********MMMOO
   00      MM                               **************MMOO
   0      MM                               ***************M*O
  00      M                               ****************MMOO
  0       M                               *****************M*O
  0   M   M   F                           *********F*******M*O
  0   M   M                               *****************M*O
  00  MM  M                               ****************MMOO
   0   M  MM                               ***************M*O
   00 MM  MM                                **************MMOO
    00 MM  MM                                **********MMOO
     00  MM MMM                                   MMMOO
      00  MMM MMM                              MMM 00
       000  MMM MMM                           MMM 000
          000   MMMM                        MMMM 000
             000   MMMMMMMM        MMMMMMMM  000
                 00000      MMMMMMMM     00000
                    0000000000000000000
```