Assignment 3–Computation of a Poincare section

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1 n-th crossing of the Poincare section

Initicial Condition	nth-crossing	idir	Final Time	Final Point
(1,0)	2	+1	6.2831853071796848	$(1.0, -9.8 \times 10^{-14})$
		–1	-6.2831853071796848	$(1.0, 9.8 \times 10^{-14})$
(0,1)	2	+1	4.7123889803847883	$(-1.0, 9.8 \times 10^{-14})$
		–1	-4.7123889803847883	$(1.0, 9.8 \times 10^{-14})$

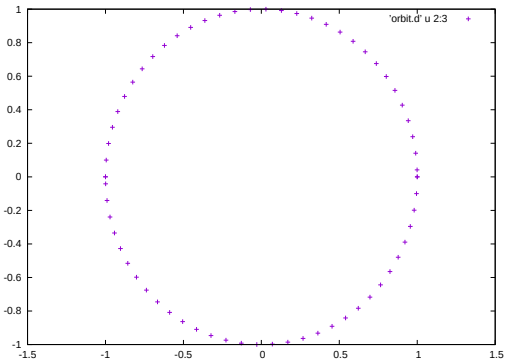

Figure 1: Ini:(1,0), 2nd-crossing, forward

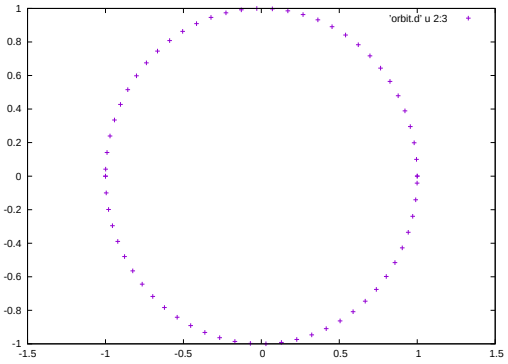

Figure 2: Ini:(1,0), 2nd-crossing, backward

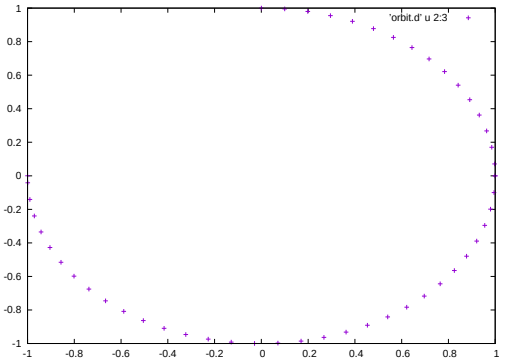

Figure 3: Ini:(0,1), 2nd-crossing, forward

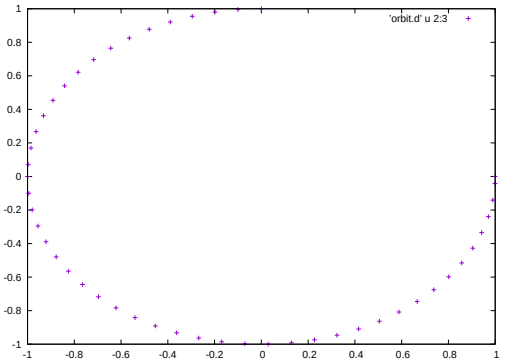

Figure 4: Ini:(0,1), 2nd-crossing, backward

2 code

The modified part of the code compared with the original version

```
            implicit real*8 (a-h,o-z)
            parameter (n=2)
            dimension yf(n),x(n)
            open(10,file='orbit.d',status='unknown')
            write(*,*) 'Initial condition x(1),...,x
               (n)'
            read(*,*) (x(i),i=1,n)
            write(*,*) 'idir?'
            read(*,*) idir
            write(*,*) 'm times crossing'
            read(*,*) m
  c we assume initial time t=0.d0
            t=0.d0

            do 12 k=1,m
            write(10,*)t,(x(i),i=1,2)
            call poinc1(n,x,yf,tfinal,idir)
            x=yf
            t=tfinal+t
            write(*,*)t,'t'
     12     continue
            end
```