

**“Julia and the TI-92”**  
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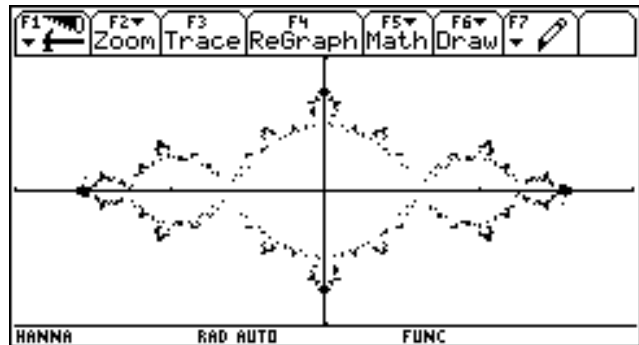
**Programming the ‘chaos game’ for the Julia set(s) is deceptively simple on the TI-92:**

```

julia()
Prgm
Input "clrdraw (0/1)",c
If c=1:ClrDraw
© Here are some interesting
values for c:
    -1→c
© .12+.74*i→c
© .5→c
© .1+.15*i→c
© The following point is in
the Julia Set for .5 + .5i;
seems like a nice place to
start
1.408-.275*i→z
While true
    If rand(2)=1 Then: √(z-c)→z
    Else: -√(z-c)→z

    EndIf
    PtOn real(z),imag(z)
    PtOn -real(z),-imag(z)
EndWhile
EndPrgm

```



**Figure 1: Julia set for  $c=-1$  in  $[-2,2] \times [-1,1]$**

**Notes:**

- **$z$  and  $c$  are complex numbers.**
- **The While loop iterates  $z$  using the formula  $z(n+1) = \text{sqr}(z(n)-c)$ . Since  $\text{sqr}()$  really has two answers, one is chosen at random. Due to symmetry around the origin, both  $z$  and  $-z$  are plotted to get a faster result, but this is not necessary.**
- **The elegance here is thanks to the 92's complex arithmetic.**

**Reference: Peitgen, Jurgens, Saupe, Fractals for the Classroom, Vol. 2, page 398, NCTM , 1992**