Subject: The Logistic Map
Posted by darren on Thu, 03 Mar 1994 21:00:24 GMT
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Keywords:

Greetings.
I am trying to plot out the evolution of the logistic equation, iterating x(i+1)=r*x(i)(1-x(i)), for r in [0,4). I'd like IDL to plot a point for each value through the iteration. The problems are that I keep getting floating underflows, and I can't generate the right results. The code is just this simple bit:

```
Function Map, r, x

return, r*x*(1.0-x)

END


Pro Logistic

 y = intarr(100) & y(*) = 0
 plot, y, xrange = [0, 4],  yrange = [0, 1]
 for i = 0,799 do begin
  r = i/200.0
  x = 0.5
  for j  = 0, 299 do begin
   x = Map(r,x)
   endfor   ; to get rid of transients
  for j = 0, 1999 do begin
   x = Map(r,x)
   k = fix(x * 600) ; plot the nearest integer
      ; to x*600
   plots, r, k
   endfor

END
```

In addition to this particular example, is there a much more optimal way of doing recursive calculations in IDL about which I'm simply not aware?
Thanks in advance.
-Darren Orbach