Using the Sequence Mode on the TI-83/TI-83+/TI-84/TI-84+

Consider the logistic sequence $P_{n+1} = 3.2\,(1 - P_n)P_n$ with $P_0 = 0.3$
We want to graph the sequence, and state the first several terms.

> Notes about the variables on the calculator:
> - *n*Min = the smallest *n* value
> - u(*n*Min) = the initial value of u; that is, first term
> - u(*n*–1) will be the term previous to u(*n*). Think of them as u_{n-1} and u_n.

Steps to successful graphing:

1. Set the **MODE**: 4th row says FUNC PAR POL SEQ. Choose SEQ.

2. Set the **MODE**: 5th row says CONNECTED DOT. Choose DOT.

3. Set up the **Y=**
   a. *n*Min = State this value as 0 or 1, whichever your instructor suggests.
   b. u(*n*) = 3.2 (1 – u(*n* – 1)) u(*n* – 1) (Note the use of the P_{n+1} formula from our problem.)
      To type the **u**, use the **u** above the 7 key accessed with 2nd 7.
      To type the ***n***, use the **X,T,θ,n** button on the calculator.
   c. u(*n*Min) = {0.3} (Note that this is the $P_0 = 0.3$. Yes, we must use the braces.)

4. Set up your **WINDOW**:
   *n*Min = Set this the same as you set the *n*Min in your Y =.
   *n*Max = Set this at 10 or whatever upper value you would like. This is the number of terms you want.
   PlotStart = Set at a value of 1.
   Plot Step = Set at a value of 1.
   Xmin = Set at a value of -1. You may wish to change this later.
   Xmax = Set at the value the same as your *n*Max in this list.
   Xscl = Set at a value of 1.
   Ymin = Set at a value of -0.5 to get a good visual.
   Ymax = Set at a value of 1, if your function values are less than 1.
   Yscl = Set at whatever increment works well, such as 1.

5. **GRAPH**

6. **TRACE**

7. Results from our example:

n = 1 X = 1	Y = 0.3
n = 2 X = 2	Y = 0.672
n = 3 X = 3	Y = .7053312
n = 4 X = 4	Y = 0.66508511
n = 5 X = 5	Y = 0.7127901
n = 6 X = 6	Y = 0.6551052
n = 7 X = 7	Y = 0.72301561
n = 8 X = 8	Y = 0.64184493

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