6

Sequence aplet

About the Sequence aplet

The Sequence aplet allows you to explore sequences functions in terms of N or of prior terms, U(N-1) and U(N-2).

You can define a sequence named U1:

- in terms of n
- in terms of U1(n-1)
- in terms of U1(n-2)
- in terms of another sequence, U2(n)
- in any combination of the above.

Getting started with the Sequence aplet

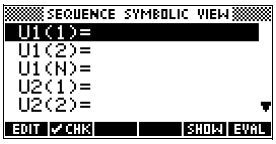
Following is an example that defines and then plots an expression in the Sequence aplet.

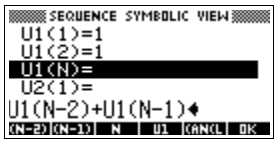
Open the Sequence aplet

1. Open the Sequence aplet.

   APLET *Select* Sequence
   START

   The Sequence aplet start in the Symbolic view.





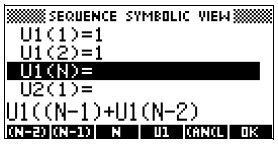
Define the expression

2. Define the Fibonacci sequence, in which each term (after the first two) is the sum of the preceding two terms: $U_1 = 1$, $U_2 = 1$, and $U_n = U_{n-1} + U_{n-2}$ for $n > 3$.

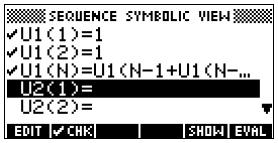
   In the Symbolic view of the Sequence aplet, highlight the $U1(1)$ field.

   1 [ENTER] 1 [ENTER]
   U1 (N-1) [+] **U1 (N-2)**

   Note: You can use the **N**, **U1**, *and* **U2** *menu keys to assist in the entry of equations.*



   [ENTER]



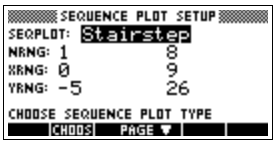
Plot the expression

3. Plot the Fibonacci sequence.
   In Plot Setup, first set the `SEQPLOT` option `to Stairstep`. Reset the default plot settings by clearing the Plot Setup view.

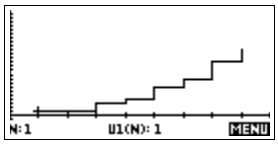
   – A **Stairstep** graph plots n on the horizontal axis and U_n on the vertical axis.

   – A **Cobweb** graph plots U_{n-1} on the horizontal axis and U_n on the vertical axis.

   [SHIFT] *SETUP-PLOT*
   [SHIFT] *CLEAR*
   [▼] [▶] 8 [ENTER]
   [▶] 8 [ENTER]



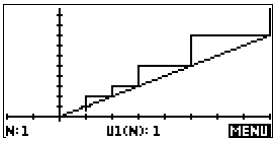
   [PLOT]



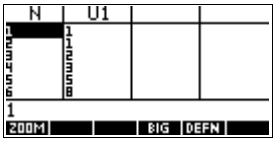
4. In Plot Setup, set the `SEQPLOT` option `to Cobweb`.

SHIFT *SETUP-PLOT*
CHOOS *Select* `Cobweb`
OK

PLOT



Display the table

5. Display the table of numeric values for this example.

NUM