More Functions for the Handheld TIs

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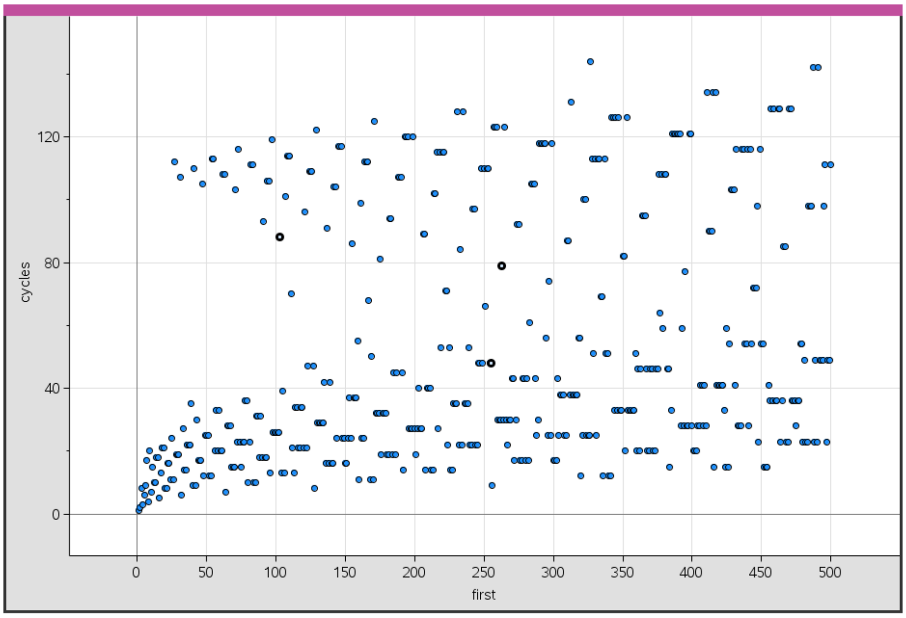
Matthew Myers sent a new bundle of TI-handheld (TI-89, TI-92 and Voyage 200) programs via his mentor Robert Haas. All files are contained in MTH122.zip. I present his functions as Nspire-procedures which are part of the library mm.tns which is to be stored in the TI-NspireCX\MyLib-folder.
I will not reprint the function codes but present the results on screen shots.

look_say(3,6)	{3,13,1113,3113,132113,1113122113,311311222113}
look_say(2,7)	{2,12,1112,3112,132112,1113122112,311311222112,13211321322112}
look_say(4,5)	{4,14,1114,3114,132114,1113122114}
in_one({1,2,3,4,5,10},{1,2,4,6,7})	{3,5,10,6,7}
in_one({*ab*,*ac*,*ad*,*ae*},{*ae*,*ab*,*bc*})	{*ac*,*ad*,*bc*}
in_both({1,2,3,4,5,10},{1,2,4,6,7})	{1,2,4}
in_both({*ab*,*ac*,*ad*,*ae*},{*ae*,*ab*,*bc*})	{*ab*,*ae*}
in_one([1 2 3 4 5 10],[1 2 4 6 7])	{3,5,10,6,7}
in_both({*ab*,*ac*,*ad*,*ae*},[*ae* *ab* *bc*])	{*ab*,*ae*}
collatz_p(10)	{10,5,16,8,4,2,1}
collatz_p(100)	{100,50,25,76,38,19,58,29,88,44,22,11,34,17,52,26,13,40,20,10,5,16,8,4,2,1}
collatz_i(100)	$\begin{bmatrix} "\#" & 100 \\ "N" & 25 \\ "M" & 100 \end{bmatrix}$

collatz_i(seq(*k*,*k*,1,100))

"#"	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
"N"	0	1	7	2	5	8	16	3	19	6	14	9	9	17	17	4	12	20	20	7	7	15	15	10▸

I believe that the first screen is self-explaining. The results of *collatz_i* may serve for a pretty scatter plot.



The next screen shows the Vigenére-Code (see also DNL 39 from 2000). *div_sum*(*n*) gives the sum of all divisors of *n*. *next_p*(*n*) presents the next prime > *n* or < *n*. *is_pr*(*n*) needs some explanation.