I don't know what f_dist(s_cur,s_next) does;  so building f_next_s(s_cur) will be just a function:

$$f\_next\_s(s\_cur) := s\_cur + 1$$

$$f\_set\_chain(s\_1, n) := \left| \begin{array}{l} \text{for } i \in 0..n-1 \\ \quad \left| \begin{array}{l} s\_i \leftarrow s\_1 \\ j \leftarrow i + 1 \\ s\_j \leftarrow f\_next\_s(s\_i) \end{array} \right. \\ s\_j \end{array} \right.$$

Mathcad starts matrices and arrays at index 0

don't need a second index, the for loop will increment i

The program above loops thru n times.  Each time it creates a scalar variable s_i and assigns it value s_1.  It then creates a scalar s_j and assigns it value s_i (which is always f_next_s(s_1).)  Then it returns the scalar value.

$$F\_set\_chain(s\_1, n) := \left| \begin{array}{l} s_0 \leftarrow s\_1 \\ \text{for } i \in 1..n \\ \quad s_i \leftarrow f\_next\_s\left(s_{i-1}\right) \\ s \end{array} \right.$$

The subscript 0 beside s is telling Mathcad that s is an array.

Each pass thru the for loop applies the next function to the last pass and adds it to the array.

And the whole array is returned.

$f\_set\_chain(2,1) = 3$

$f\_set\_chain(2,4) = 3$

no matter how many times we exercise the loop, we only get the next step.

But the array does what you want!

$$F\_set\_chain(2,1) = \begin{pmatrix} 2 \\ 3 \end{pmatrix} \qquad F\_set\_chain(2,4) = \begin{pmatrix} 2 \\ 3 \\ 4 \\ 5 \\ 6 \end{pmatrix}$$