Let :

Then from the definition of :

So the characteristic polynomial of this recurrence relation is

Or

Therefore, we know that the closed form to the original recurrence is just:

<https://en.wikipedia.org/wiki/Recurrence_relation#Solving_homogeneous_linear_recurrence_relations_with_constant_coefficients>

where a, b, c depend on the initial values and are not all zero. We may choose c=0, and so to satisfy our initial values, we could take a=4 and b=−3. So the above simply reduces to: