

## Math555 Homework 8

**Note:** To submit the  $k$ -th homework, simply put your files in the folder `HWk` on CoCalc, and it will be collected on the due day.

1. Solve the recurrence relation below.

$$\begin{cases} a_n - 3a_{n-1} + 0a_{n-2} + 4a_{n-3} = 0. \\ a_0 = 3, a_1 = 2, a_2 = 14. \end{cases}$$

2. Use Sage to write two functions such that both compute  $a_n$  in the previous question. One uses the recurrence relation, while the other uses the formula you found. Compute the values of  $a_n$  for  $n = 1, \dots, 10$  and check if your answer is correct. See the file `SageProject3_blank.sagews` in your CoCalc folder.