

# CSE230 Spring 2021 Assignment 3

## Recursion

September 15, 2021

1. Let,  $a_1 = 7$  and for  $n \geq 2$ ,  $a_n = \frac{a_{n-1}}{2}$  express  $a_n$  in terms of  $n$ .
2. Let,  $a_1 = 3$  and for  $n \geq 2$ ,  $a_n = 2a_{n-1} + 1$ , express  $a_n$  in terms of  $n$ .
3. Let,  $a_1 = 3, a_2 = 4$  and for  $n \geq 3$ ,  $a_n = 2a_{n-1} + a_{n-2} - 5$ , express  $a_n$  in terms of  $n$ .
4. Let,  $a_1 = 3, a_2 = 4$  and for  $n \geq 3$ ,  $a_n = 2a_{n-1} + a_{n-2} + n^2$ , express  $a_n$  in terms of  $n$ .
5. Let,  $a_1 = 1, a_2 = 2, b_1 = 0, b_2 = 1$ ,

$$\begin{aligned} & \text{for } n \geq 3, \\ a_n &= 2a_{n-1} + b_{n-1} \\ & \text{for } n \geq 2 \\ b_n &= b_{n-1} + a_{n-1} \end{aligned}$$

express  $a_n$  in terms of  $n$ .