

# Assignment 1

Solve the following recurrence:

1. (1pt)

$$T(n) = \begin{cases} 1, & \text{if } n = 1, \\ T(n-1) + 1, & \text{if } n > 1. \end{cases}$$

2. (1pt)

$$T(n) = \begin{cases} 1, & \text{if } n = 1, \\ 2T(n/2) + n, & \text{if } n \geq 2. \end{cases}$$

3. (1pt)

$$T(n) = \begin{cases} 0, & \text{if } n = 2, \\ T(\sqrt{n}) + 1, & \text{if } n > 2. \end{cases}$$

4. (2pts)

$$T(n) = \begin{cases} 1, & \text{if } n = 1, \\ T(n/3) + T(2n/3) + n, & \text{if } n > 1. \end{cases}$$