

CIS121 - Fall 2008

Lab 3 – Monday/Tuesday, September 22/23

$$1 + q + q^2 + q^3 + \dots + q^{n-1} = \frac{q^n - 1}{q - 1}.$$

1

Solve the following recurrence relation

$$T(1) = 0.5 \text{ and } T(n) = 0.5n + T(n - 1)$$

2

Solve the following recurrence relation

$$T(1) = 3 \text{ and } T(n) = 2T(n/2) + 1$$

You can assume that $n = 2^k$ for some integer k .

3

Solve the following recurrence relation

$$T(1) = 2 \text{ and } T(n) = T(n - 1)$$

4

Solve the following recurrence relation

$$T(1) = 1 \text{ and } T(n) = 4T(n - 1) + 1$$

5

Solve the following recurrence relation

$$T(1) = 1 \text{ and } T(n) = 3T(n/3) + 1$$

You can assume that $n = 3^k$ for some integer k .

6

Solve the following recurrence relation

$$T(1) = 0 \text{ and } T(n) = 2T(n/2) + n + 1$$