

COMP 2711: Discrete Mathematical Tools for Computer Science

In Class Exercise #19

1. Proof using Mathematical Induction:

If $T(n) = rT(n-1) + a$, $T(0) = b$, and $r \neq 1$, then

$$T(n) = r^n b + a \frac{1 - r^n}{1 - r}$$

for all nonnegative integers n .