

Part B

Problem (5.1, -1)

We can verify that $T(n) = 2^n$ is a solution to the given recurrence by using "substitution method".

For $n=0$, the formula is true since $2^0 = 1$. For $n > 0$, substituting into the recurrence and also using the formula for summing

$$\begin{aligned} T(n) &= 1 + \sum_{i=0}^{n-1} 2^i \\ &= 1 + (2^n - 1) \\ &= 2^n \end{aligned}$$