$$\forall j \in \mathbb{N}, S_j \leq 1$$

$$S_{j} = \sum_{i=(2^{j-1})+1}^{2^{i}} \binom{1}{i}$$

$$n + 1$$

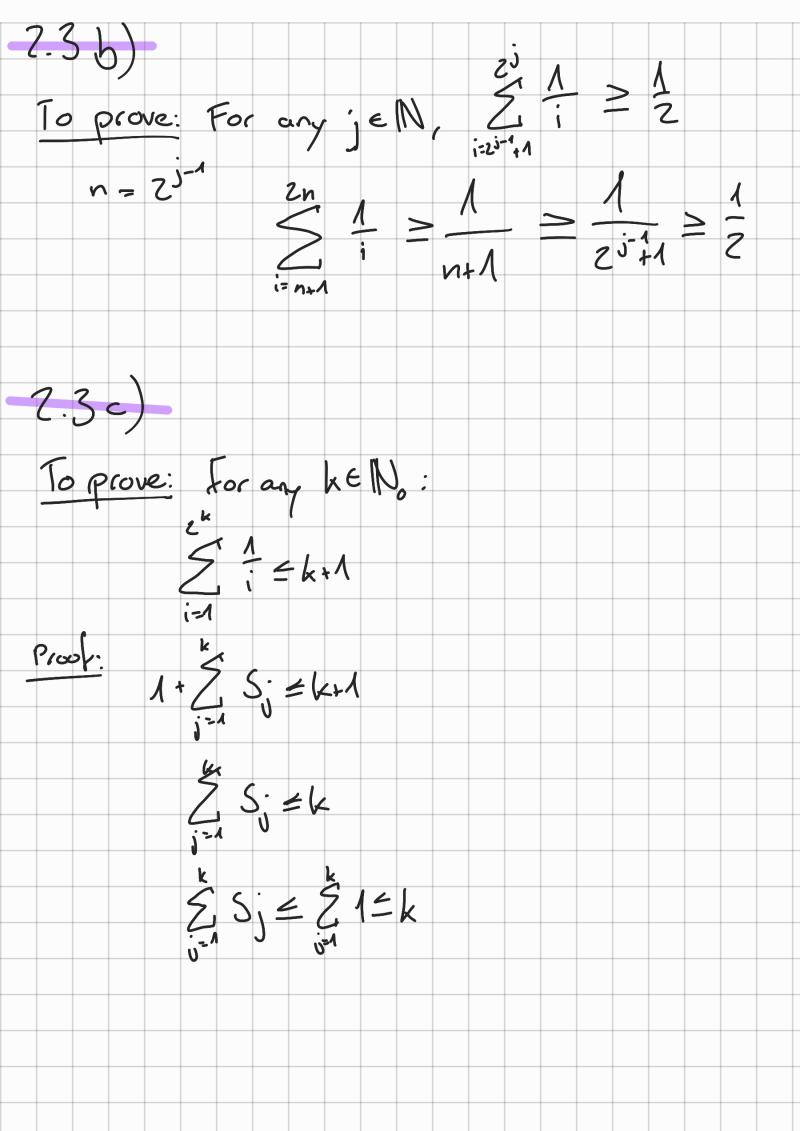
$$n + 2$$

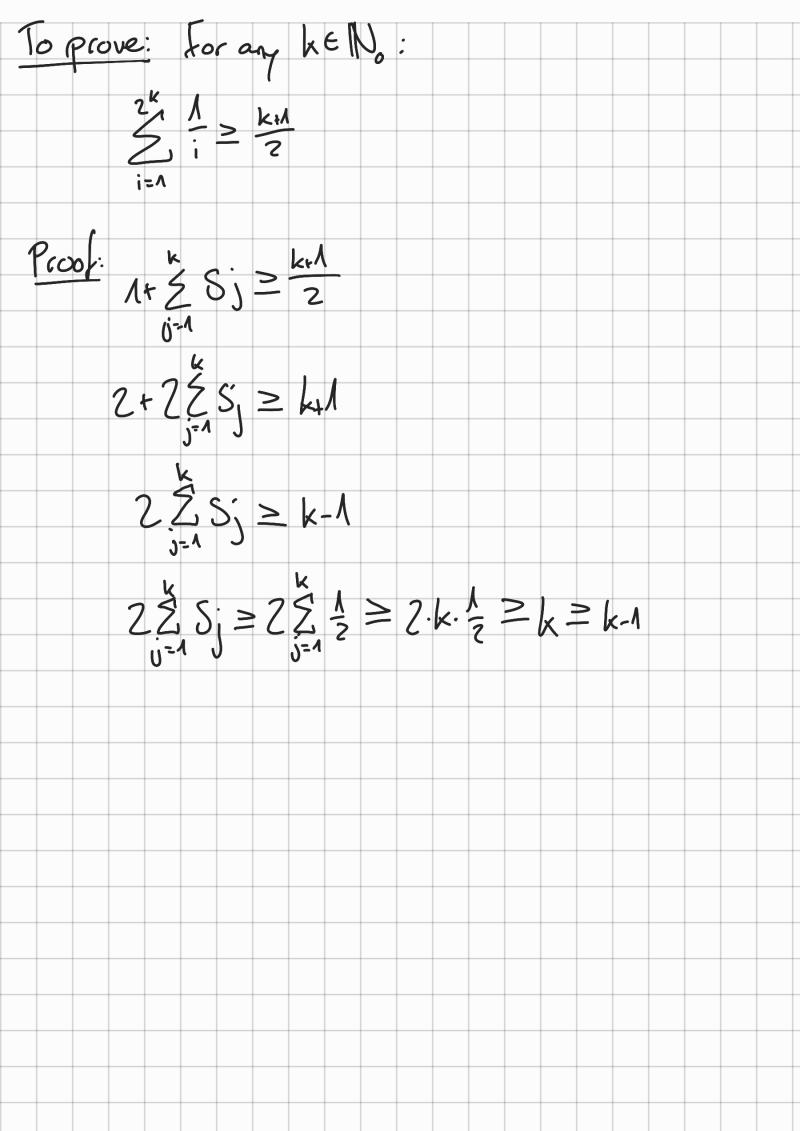
$$n + 3$$

$$=\frac{2n}{1-n+1}$$

$$\leq n \cdot \left(\frac{1}{n+1}\right) = \frac{n}{n+1}$$







2.5.a for (a in range (1,n))
for (b in range (1,n))
for (c in range (1,n)) for (d in rounge(1, n)) $\int_{-\infty}^{\infty} \int_{-\infty}^{\infty} f(a) + f(b) + f(c) = f(d)$ $\int_{-\infty}^{\infty} \int_{-\infty}^{\infty} \int_{-\infty}^{\infty} f(a) + f(b) + f(c) = f(d)$ ontout ("NO") · M · M - MA $\cdot \cdot \cdot \bigcirc (\cap^{\mathcal{A}})$

2.5.6 amay: possible_sums = [false] * n^3 for (a in range (1, n) for (b in range (1, M)) farction range (1, n)) $SMM_abC = \{(a)+f(b)+f(c)\}$ it (sum_abc in range (1, n3)) LL L possible_sums (sum_abc) = frue for (d in range (1, n) if (possible_sums (f(d)) L Loutput ("VES") OMPNT (IINOII) $(N \cdot N \cdot N) + N = O(n^3)$