Ficha 2 - Método de indução.

Exercício Extra: Prove:

$$1 + r + \cdots + r^{n-1} = \frac{1 - r^n}{1 - r}$$

- $n = 1 \implies 1 = \frac{1-r}{1-r} \implies 1 = 1$
- $n = m + 1 \implies 1 + r + \cdots + r^{m-1} + r^m = \frac{1-r^{m+1}}{1-r} = \frac{1-r^{m-1} * r^2}{1-r} =$

Questão 1

(a) $\sum_{k=1}^{n} \frac{1}{2^k} = 1 - \frac{1}{2^n}$

- $$n = 1 \implies \sum_{k=1}^{1} \frac{1}{2^k} = 1 - \frac{1}{2^n} \implies \frac{1}{2} = 1 - \frac{1}{2}$$
- $$n = m + 1 \implies \sum_{k=1}^{m+1} \frac{1}{2^k} = \sum_{k=1}^{m} \frac{1}{2^k} + \frac{1}{2^{m+1}} = 1 - \frac{1}{2^m} + \frac{1}{2^m + 1}$$