Geometrisk serie:

$$\sum_{k=0}^{\infty} a_k \qquad \frac{a_{k+1}}{a_k} = q \qquad \frac{a_2}{a_1} = \frac{a_3}{a_2} = \frac{a_4}{a_3} = q.$$

$$a_k = a_{k-1} q = a_{k-2} q^2 = \ldots = a_0 q^k$$

$$\sum_{k=0}^{\infty} a_0 q^k = a_0 \boxed{\sum_{k=0}^{\infty} q^k}$$

Sats B2.2 (Geometrisk serie)

$$\sum_{k=0}^{\infty} q^k = \frac{1}{1-q} \qquad \text{om } |q| < 1,$$

annars divergent.

$1+q+q^2+\ldots q^n \to \frac{1}{1-q}$ då $n\to\infty$ om $|q|<1$.

$(1-q)(1+q+q^2+\ldots+q^n) = 1+\cancel{q}+\cancel{q^2}+\ldots+\cancel{q^n}-\cancel{q}-\cancel{q^2}-\ldots-\cancel{q^n}-q^{n+1}$

$= 1-q^{n+1} \to 1$ då $n\to\infty$ om $|q|<1$