

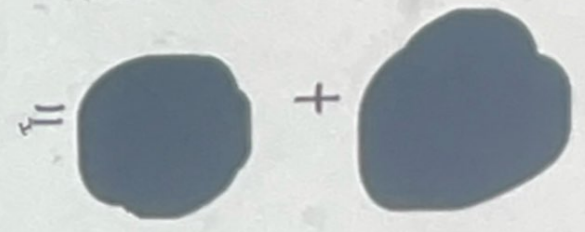
$$\text{Supp } |q| < 1.$$

$$\sum_{n=5}^{+\infty} q^n = \frac{q^5}{1-q}$$

$$\sum_{n \in \mathbb{Z}} 9^{|n|} = \sum_{n \in \mathbb{Z}^-} 9^{|n|} + \sum_{n \in \mathbb{N}^*} 9^{|n|}$$

$$= \sum_{n=0}^{+\infty} 9^{1-n} + \sum_{n=1}^{+\infty} 9^{|n|}$$

$$= \sum_{n=0}^{+\infty} 9^n + \sum_{n=1}^{+\infty} 9^n$$



En fin:

$$\sum_{n \in \mathbb{Z}} 9^{|n|} = \text{[blacked out result]}$$

□

$$\begin{aligned}\sum_{n \in \mathbb{Z}} q^{|n|} &= \sum_{n \in \mathbb{Z}^-} q^{|n|} + \sum_{n \in \mathbb{N}^*} q^{|n|} \\ &= \sum_{n=0}^{+\infty} q^{|-n|} + \sum_{n=1}^{+\infty} q^{|n|} \\ &= \sum_{n=0}^{+\infty} q^n + \sum_{n=1}^{+\infty} q^n \\ &= \frac{1}{1-q} + \frac{q}{1-q}\end{aligned}$$

En fin :

$$\sum_{n \in \mathbb{Z}} q^{|n|} = \frac{1+q}{1-q}$$



$$a \in \bigcup_{n \in \mathbb{N}} I_n \iff (\exists n \in \mathbb{N}, a \in I_n)$$

$$a \in \bigcap_{n \in \mathbb{N}} I_n \iff (\forall n \in \mathbb{N}, a \in I_n)$$

$$\forall n \rightarrow l \quad \text{on } l \neq 0 \quad \Leftrightarrow \quad \forall n \sim l$$