$\because \quad a^3 - b^3 = (a-b)(a^2+ab+b^2)$

$$(a-b) = \frac{a^3 - b^3}{a^2+ab+b^2}$$

$$a = (n^3+1)^{1/3}, \quad b = n$$

$$(n^3+1)^{1/3} - n = \frac{(n^3+1) - n^3}{(n^3+1)^{2/3} + n\,(n^3+1)^{1/3} + n^2}$$

$$u_n = \frac{1}{n^2\left[\left(1+\frac{1}{n}\right)^{2/3} + \left(1+\frac{1}{n}\right)^{1/3} + 1\right]}$$

take $v_n = \dfrac{1}{n^2}$

$\lim\limits_{n\to\infty} \dfrac{u_n}{v_n} = \dfrac{1}{3} \neq 0 \Rightarrow \Sigma u_n$ & Σv_n behaves alike.