Exercises

E7.31 [23F] *(Proposed on 2022-12-13)* Note: *Written exam 29th January 2021.* Let it be $\alpha > 0$. Say (justifying) for which α the following series converge or diverge

- $$\sum_{n=1}^{\infty} \left(\sqrt[4]{n^8 + n^\alpha} - n^2 \right)$$
- $$\sum_{n=2}^{\infty} \left(\frac{1}{n^\alpha} - \frac{1}{n^\alpha + 1} \right)$$
- $$\sum_{n=2}^{\infty} \frac{1}{(\log_2 n)^{\alpha \log_2(n)}}$$

where the logarithms are in base 2.

Solution 1. [23G]