

Exercises: Sequences and Series Lecture 2 (8.1)

Find whether the following sequences converge or diverge:

$$a_n = \frac{n^3 + 1}{n^4 - 2}$$

$$a_n = \frac{n^4 - 2}{n^3 + 1}$$

$$a_n = \frac{1}{1 + \frac{n!}{n^n}}$$

$$a_n = \frac{1}{n^2 + \cos^2(n)}$$

Estimate how large N must be so that $|a_n - 1| \leq 10^{-3}$, if $a_n = \frac{n^3 - 1}{n^3 + 1}$.