

Questions for recitation 19 March 2021

1. **Exercises 11.3:** #27-28, 32-33, 35-36, 38
2. Determine whether the following sums converge or diverge. Justify your answers. If you can figure out what a convergent sum converges to, do so.

(a) $\sum_{n=4}^{323} \frac{1}{\sqrt{n}}$

(b) $\sum_{n=3}^{\infty} \frac{\ln(n)}{n^2}$

(c) $\frac{1}{4} + \frac{1}{13} + \frac{1}{22} + \frac{1}{31} + \frac{1}{40} + \dots$

(d) $\sum_{n=19}^{\infty} \frac{18}{2+n^2}$

(e) $\sum_{n=-3}^{\infty} \cos\left(\frac{3}{n^2}\right)$.

(f) $\sum_{n=1}^{\infty} \ln\left(\frac{1}{n}\right) - \ln\left(\frac{1}{n^2}\right)$

(g) $\sum_{n=9}^{\infty} 5(4)^{8-n}$

(h) $\sum_{n=10}^{\infty} \frac{1}{n \ln(n)}$

(i) $\sum_{n=4}^{\infty} \frac{n^2 \sqrt{|\sin n\pi|}}{n^3 + 3}$

3. Find all non-negative values for α such that the infinite sum $\sum_n \alpha^{\ln(n)}$ converges.