

# Assignment 18 (2/22)

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## Problem 1

Determine whether the following series converge or diverge. Mention clearly what test(s) you are using.

(a)

$$\sum_{k=1}^{\infty} \frac{1}{\ln(k)\sqrt{k}}$$

(b)

$$\sum_{k=1}^{\infty} \frac{k^4 - 1}{3k^k + 5}$$

(c)

$$\sum_{k=1}^{\infty} \frac{k + \cos k}{k^3 + 1}$$

(d)

$$\sum_{k=1}^{\infty} \frac{k^e}{e^k}$$

(e)

$$\sum_{k=1}^{\infty} \frac{(\arctan k)^2}{k^2 + 1}$$

(f)

$$\sum_{k=1}^{\infty} \frac{1}{\sqrt{(2k^2 + 1)(k + 2)}}$$

(g)

$$\sum_{k=1}^{\infty} \frac{k!}{k^{k/3}}$$