

MEMORIAL UNIVERSITY OF NEWFOUNDLAND

DEPARTMENT OF MATHEMATICS AND STATISTICS

SECTION 1.4

Math 2000 Worksheet

WINTER 2020

For practice only. Not to be submitted.

1. Use the Integral Test to determine whether each of the following series converges or diverges.

(a) $\sum_{i=1}^{\infty} \frac{1}{\sqrt{i}}$

(b) $\sum_{i=1}^{\infty} \frac{i}{e^{5i}}$

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

(d) $\sum_{i=2}^{\infty} \frac{\ln(i)}{i^2}$

(e) $\sum_{i=2}^{\infty} \frac{\ln(i)}{i}$

2. Find the sum of the series $\sum_{i=1}^{\infty} \frac{1}{i^7}$ correct to three decimal places using the remainder estimate for the Integral Test.