

Series Groupwork
(Comparison Test and Limit Comparison Test)

MATH 131: Calculus II
November 22, 2019

Determine whether the following series are convergent or divergent.

(1) Exercise 17 from Section 10.5.

(2) $\sum_{n=1}^{\infty} \frac{3^n}{7^n + 9}$ (Note: we cannot split up the denominator!)

(3) Exercise 24 from Section 10.5.

(4) $\sum_{n=1}^{\infty} \frac{\ln n}{n}$ (Note: you **could** use the Integral Test on this one, but a comparison test will be faster. To do Direct Comparison, you will need to get a bound on n for which your inequality holds.)

(5) Exercise 29 from Section 10.5.

(6) $\sum_{n=1}^{\infty} \frac{6n^2 \cdot 2^n}{n^4 + 3}$ (Note: Use what you know! i.e. it is ok to use results from previous problems; just mention which!)

(7) $\sum_{n=1}^{\infty} \sin\left(\frac{1}{n^2}\right)$