

Math 102 — Limit comparison test

Problem 1. For each series $\sum_{n=1}^{\infty} a_n$ below, use the Limit Comparison Test to determine with it converges. You should find a series $\sum_{n=1}^{\infty} b_n$ which you already know converges or diverges and which satisfies the condition that

$$\lim_{n \rightarrow \infty} \frac{a_n}{b_n} > 0.$$

a. $\sum_{n=1}^{\infty} \frac{3n^3+7}{5n^4-6}$

b. $\sum_{n=1}^{\infty} \frac{4n^2}{n^5+n^4}$

c. $\sum_{n=1}^{\infty} \frac{1}{\sqrt{7n^5+3n^2-2}}$

d. $\sum_{n=1}^{\infty} \frac{4n^3}{\sqrt{n^7+3n^2-2}}$