

## Math 102 — Limit comparison test

*Summary.* Try each of the following problems together in a small group.

---

**Problem 1.** Make a conjecture about whether each of the following series converges or diverges.

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

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

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

d.  $\sum_{n=1}^{\infty} \frac{n^2}{\sin n+n^3}$

**Problem 2.** Use the limit comparison test to explain why your conjectures are true.