Math 121   Self-Assessment Quiz #7   October 22, 2021

• Please see the course webpage for the answer key.

1. In each case determine whether the given series is **absolutely convergent**, **conditionally convergent**, or **diverges**. Name any convergence test(s) you use, and justify all of your work.

a. $\displaystyle\sum_{n=2}^{\infty} (-1)^n \; \frac{n}{n^2 - 1}$

b. $\displaystyle\sum_{n=1}^{\infty} (-1)^n \; \frac{n^3 \; (3n)! \; \ln n}{(n!)^4 \; 2^{4n} \; n^n}$

c. $\displaystyle\sum_{n=1}^{\infty} (-1)^n \; \frac{3n^5 + 6}{n^9 + 5\sqrt{n} + 9}$

d. $\displaystyle\sum_{n=1}^{\infty} \frac{7 + n^2}{5n^2 - n + 14}$