Problem Set #5

Due Friday, March 8, 2024 @ 12:30 pm
Submit as single pdf file to Canvas

Remember to review the Guidelines for WeBWorK and Problem Sets on the course webpage when writing up your solutions. The rule of thumb is that you should give enough explanation so that you could hand your assignment to a student who took Calc II last semester and they could follow your solutions.

Do the following series converge or diverge?

- If the series converges, find the exact value to which it converges, if possible.
- If you cannot find the exact value, approximate it by using WolframAlpha to compute S_{100}

Remember that you need to explain your answers and reference any tests used!

1. $\displaystyle\sum_{n=1}^{\infty} \frac{2^n}{n^2}$

2. $\displaystyle\sum_{k=2}^{\infty} \frac{2k}{k^3+k+3}$

3. $\displaystyle\sum_{k=1}^{\infty} k\, e^{-k}$

4. $\displaystyle\sum_{k=5}^{\infty} \frac{\ln(k)}{\sqrt{k-1}}$