

YOUR NAME: _____

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Read each problem **very carefully** before starting to solve it. Each problem is worth 5 points. It is necessary to show **all** your work. Correct answers without explanations are worth 0 points. GOOD LUCK!!

1. Use the method of telescoping series to determine whether the infinite series $\sum_{n=1}^{\infty} \ln \frac{n}{n+1}$ is convergent or divergent. If it is convergent, find its sum.

2. Use your knowledge of geometric series to find for which values of x the series $\sum_{n=0}^{\infty} 2^n (x+1)^n$ converges. For those values, find its sum.

3. Use the comparison test to determine whether the series $\sum_{n=1}^{\infty} \frac{1}{\sqrt{n^3+1}}$ converges or diverges.