Math 132 - Homework 5

April 28, 2021

Name _____

Score _____

The following problems are from the suggested homework. Show all work to receive full credit. Supply explanations when necessary. This assignment is due May 5.

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1. (2 points) Consider the series $\displaystyle\sum_{n=1}^{\infty} \frac{(-1)^{n+1}}{n^2}$. Use the alternating series remainder theorem to find a value of N that guarantees that the sum of the first N terms differs from the sum of the series by no more than 10^{-6}.

2. (2 points) Find the radius and interval of convergence: $\displaystyle\sum_{n=1}^{\infty} \frac{(2x)^n}{n}$

Turn over.

3. (6 points) Determine whether each series converges absolutely, conditionally, or not at all. Show your work.

(a) $\displaystyle\sum_{n=1}^{\infty}(-1)^{n+1}\frac{\sqrt{n+3}}{n}$

(b) $\displaystyle\sum_{n=1}^{\infty}\frac{n^2}{2^n}$

(c) $\displaystyle\sum_{k=1}^{\infty}\left(\frac{2k^2-1}{k^2+3}\right)^k$