

**Quiz 5**

MATH 112-017 and 112-019

New Jersey Inst. Tech.

Prof. Nicholas Dubicki

Time Limit: 15 min.

Name: \_\_\_\_\_

Date: \_\_\_\_\_

Section: \_\_\_\_\_

1. Assume the following infinite series converge. Calculate their sum.

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$$(a.) S = \sum_{n=0}^{\infty} \frac{2^n + (-3)^n}{4^n}, \quad (b.) S = \sum_{n=1}^{\infty} \frac{\sqrt{n+1} - \sqrt{n}}{\sqrt{n}\sqrt{n+1}}$$

2. Prove whether the following series converges or diverges. State which technique you are using.

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$$S = \sum_{n=1}^{\infty} ne^{-n}$$