

NAME: \_\_\_\_\_ ID: \_\_\_\_\_ Section: \_\_\_\_\_

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**Exercise 1** (5 points)

Determine whether the series  $\sum_{n=1}^{\infty} \frac{\ln(n)}{n^2}$  is convergent or divergent.

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**Exercise 2** (5 points)

Determine whether the series  $\sum_{n=1}^{\infty} \left( \frac{n}{2} \sin\left(\frac{1}{n}\right) \right)^n$  is convergent or divergent.

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**Exercise 1** (5points)

Determine whether the series  $\sum_{n=1}^{\infty} ne^{-n}$  is convergent or divergent.

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**Exercise 1** (5 points)

Determine whether the series  $\sum_{n=1}^{\infty} \left( \frac{5}{2} - \frac{\ln(1+n)}{n} \right)^n$  is convergent or divergent.