Exercise 1 (5 points)
The sequence \( \left\{ \frac{\ln(n)}{n^2} \right\}_{n=2}^{\infty} \) is:

- Decreasing
- Increasing
- Neither increasing nor decreasing
- Divergent
- Convergent and its limit is 1

Exercise 2 (5 points)
The improper integral \( \int_{0}^{\infty} xe^{-x} \, dx \) is:

- Convergent and its value is 1
- Convergent and its value is -1
- Convergent and its value is 0
- Convergent and its value is 2
- Divergent
Exercise 1 (5 points)

The improper integral \( \int_{e}^{\infty} \frac{dx}{x(\ln x)^2} \) is:

- Convergent and its value is 1
- Convergent and its value is -1
- Convergent and its value is 0
- Convergent and its value is 2
- Divergent

Exercise 2 (5 points)

The sequence \( \left\{ \frac{e^n}{n^2} \right\}_{n \geq 3} \) is:

- Increasing
- Decreasing
- Neither increasing nor decreasing
- Convergent
- Has an upper bound