



Bilkent University

Quiz # 02  
Math 102 Section 08 Calculus II  
19 February 2024 Monday  
Instructor: Ali Sinan Sertöz



Name & Lastname: .....

Department: .....

Student ID: .....

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- Q-1)** (a) Assume the fact that the function  $f(x) = \frac{\ln x}{x^2}$  is positive, continuous and decreasing for  $x \geq 3$ . Use the Integral Test to decide if the series  $\sum_{n=3}^{\infty} \frac{\ln n}{n^2}$  converges or diverges.
- (b) Use the Direct Comparison Test to decide if the series  $\sum_{n=3}^{\infty} \frac{\ln n}{n^2}$  converges or diverges.
- (c) Use the Limit Comparison Test to decide if the series  $\sum_{n=3}^{\infty} \frac{\ln n}{n^2}$  converges or diverges.

Show your work in detail. Correct answers with no justification will not get any credit.

Grading: 4+3+3=10 points

**Solution:** (Grader: melis.gezer@bilkent.edu.tr)