# Number Theory Euler Series

**Key words:**

1. Series
2. Double integrals

Solve the following Questions:

1. Prove the following Theorem:

   **Theorem 1**
   $$\sum_{n\geq 1} \frac{1}{n^2} = \frac{\pi^2}{6}$$

2. Discuss the rate of the convergence of the above series.

**Mathematician in Focus** Leonhard Euler