1. Use the integral test to show $S = \sum_{k=1}^{\infty} \dfrac{k}{e^{k^2}}$ converges.

   Then find lower and upper limits for the value of S.

2. Determine whether the series $\sum_{j=2}^{\infty} \dfrac{1}{j(\ln(j))^5}$ converges or diverges. If the series converges, find a number N such that the partial sum S_N approximates the sum of the series within .001. If the series diverges, find a number N such that $S_N \geq 1000$.

Sklensky

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