Bonus Question[1]

Euler's constant γ is obtained as a limit of γ_n where

$$\gamma_n = \left[1 + \frac{1}{2} + \frac{1}{3} + \ldots + \frac{1}{n} - \ln n \right].$$

(a) Provide one instance in mathematics where this γ appears.

(b) Consider the use of $\gamma_n - \gamma_{n+1}$ as a convergence tolerance. From the algebraic expression for $\gamma_n - \gamma_{n+1}$ estimate how many terms are necessary to obtain a tolerance of 5×10^{-5}.

(c) Write a m-file function that evaluates γ. Decide whether the above convegence tolerance is a good estimate of the truncation error that will occur.

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[1]Not included for this quiz and Not necessary to turn in. Prize: Slice of Black Forest cake for best answer.