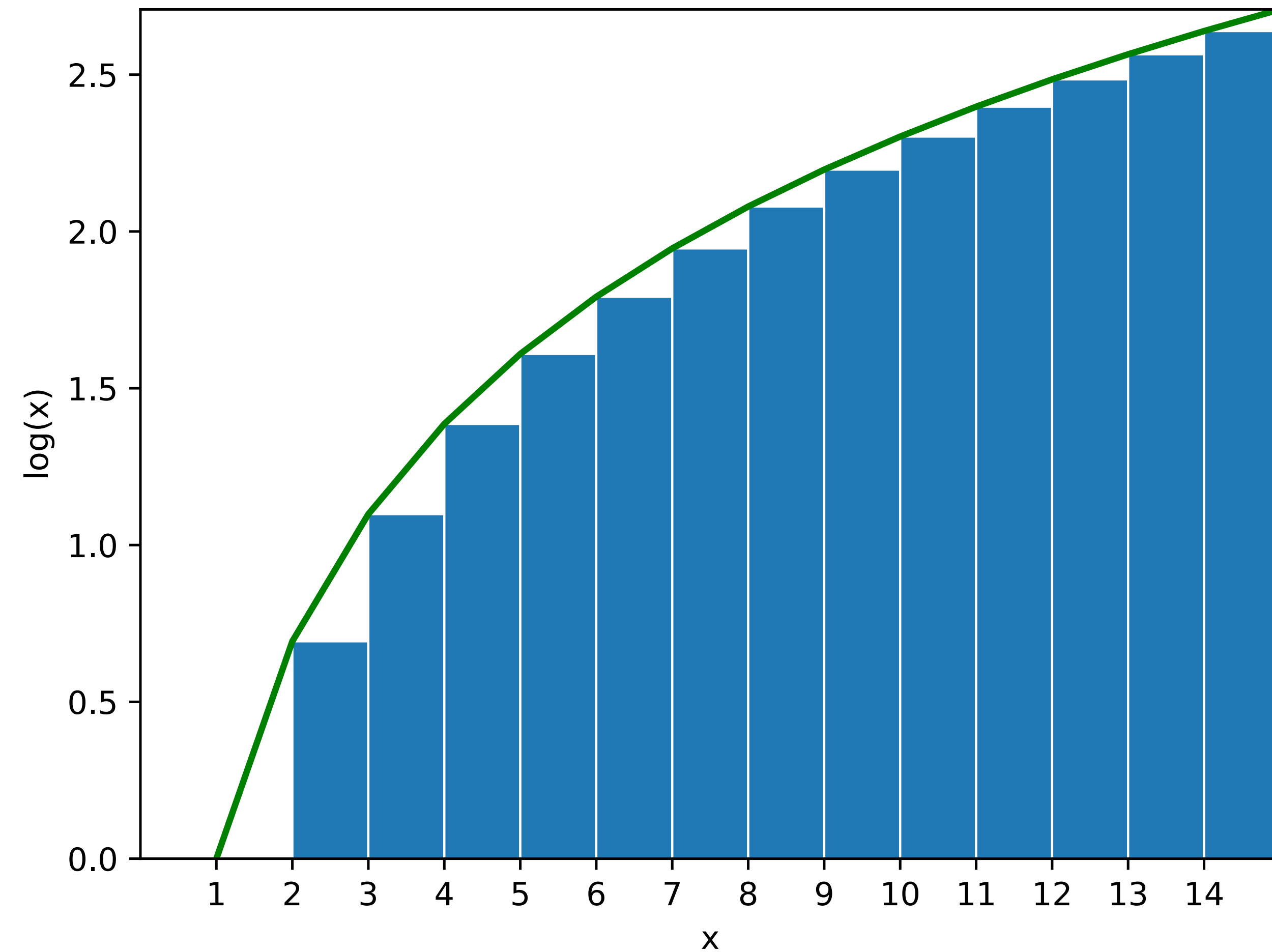


# Deriving the Stirling approximation:

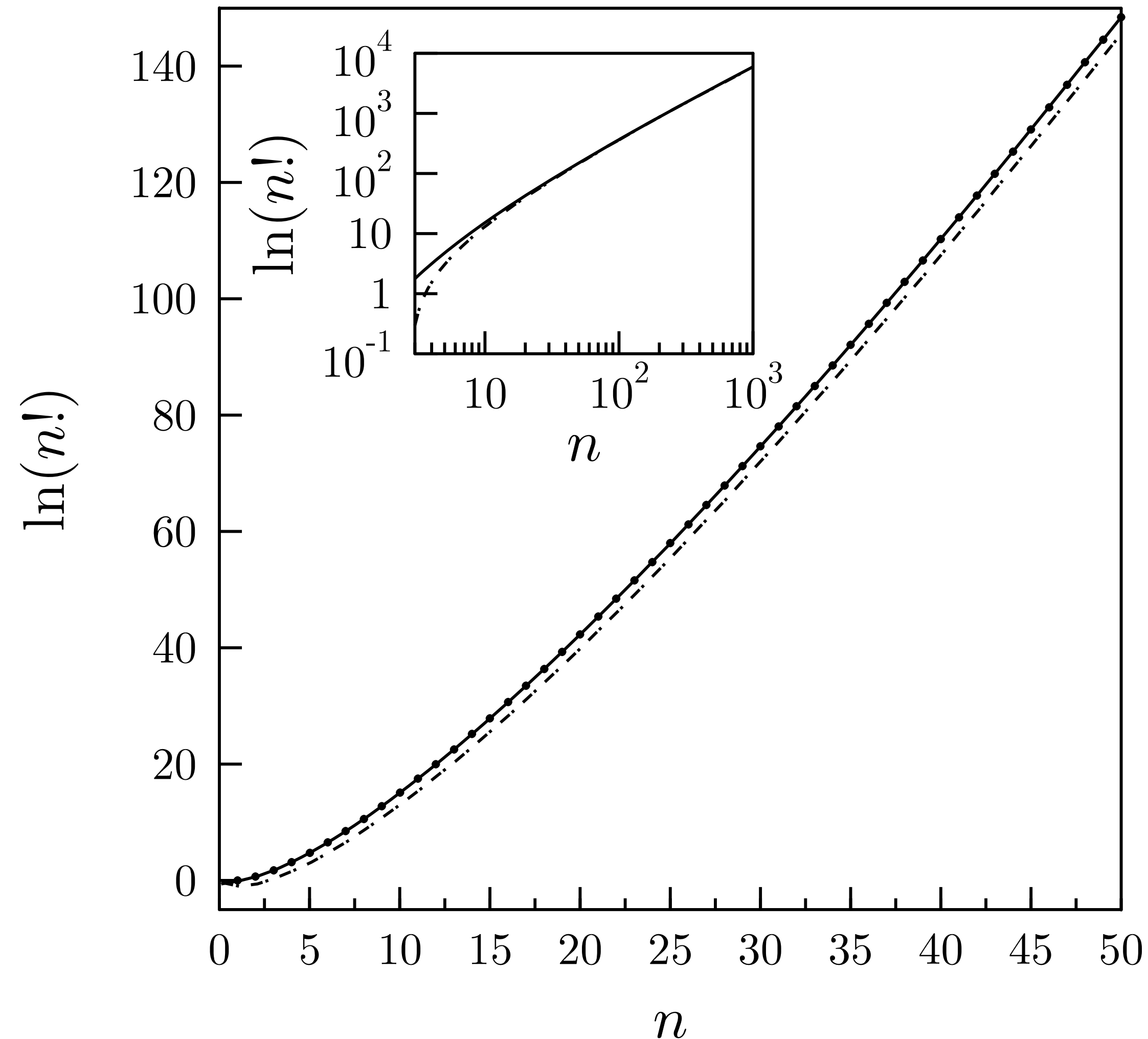
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Replace the sum with  
integral

# Accuracy of Stirling

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- Points:  $\log(n!)$
- Dashed:  $n \log n - n$
- Solid:  $\log(n^n e^{-n} \sqrt{2\pi n})$

We will use the dashed