

[illegible]

$\lim_{n \rightarrow \infty} \frac{1}{n} \sum_{k=1}^n f\left(\frac{k}{n}\right) = \int_0^1 f(x) dx$.
 If f is continuous on $[a, b]$, then
 $\lim_{n \rightarrow \infty} \frac{1}{n} \sum_{k=1}^n f\left(\frac{k}{n}\right) = \int_a^b f(x) dx$.
 Example: $f(x) = x^2$, $a=0$, $b=1$.
 $\lim_{n \rightarrow \infty} \frac{1}{n} \sum_{k=1}^n \left(\frac{k}{n}\right)^2 = \int_0^1 x^2 dx = \frac{1}{3}$.

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