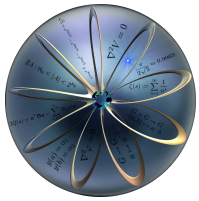

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Euler-Maclaurin summation formula

Canonical name	EulerMaclaurinSummationFormula
Date of creation	2013-03-22 11:46:01
Last modified on	2013-03-22 11:46:01
Owner	KimJ (5)
Last modified by	KimJ (5)
Numerical id	9
Author	KimJ (5)
Entry type	Theorem
Classification	msc 65B15
Classification	msc 00-02
Related topic	BernoulliNumber

Let B_r be the rth Bernoulli number, and $B_r(x)$ be the rth Bernoulli periodic function. For any integer $k \geq 0$ and for any function f of class C^{k+1} on $[a, b], a, b \in \mathbb{Z}$, we have

$$\sum_{a<n\leq b} f(n) = \int_a^b f(t)dt + \sum_{r=0}^{k} \frac{(-1)^{r+1} B_{r+1}}{(r+1)!}(f^{(r)}(b) - f^{(r)}(a)) + \frac{(-1)^k}{(k+1)!} \int_a^b B_{k+1}(t) f^{(k+1)}(t)dt.$$