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& Journal of Mathematics & Physics
22 (1943)
‡[MTAC 20 465 66]NS

TABLE OF COEFFICIENTS IN NUMERICAL INTEGRATION FORMULAE

By A. N. Lowan and Herbert Salzer

The values of $B_n^{(n)}(1)/n!$ and $B_n^{(n)}/n!$, where $B_n^{(n)}(1)$ denotes the n^{th} Bernoulli polynomial of the n^{th} order for $x = 1$ and $B_n^{(n)}$ denotes the n^{th} Bernoulli number of the n^{th} order, were computed for $n = 1, 2, \cdots 20$. The quantities $B_n^{(n)}(1)/n!$ are required in the Laplace formula of numerical integration employing forward differences, as well as in the Gregory formula. The quantities $B_n^{(n)}/n!$ are used in the Laplace formula employing backward differences. (See Milne-Thomson, "Calculus of Finite Differences", pp. 181–184, 191–193.)

n	$B_n^{(n)}(1)/n!$	$B_n^{(n)}/n!$
1	$\frac{1}{2}$	$-\frac{1}{2}$
2	$-\frac{1}{12}$	$\frac{5}{12}$
3	$\frac{1}{24}$	$-\frac{3}{8}$
4	$-\frac{19}{720}$	$\frac{251}{720}$
5	$\frac{3}{160}$	$-\frac{95}{288}$
6	$-\frac{863}{60480}$	$\frac{19087}{60480}$
7	$\frac{275}{24192}$	$-\frac{5257}{17280}$
8	$-\frac{33953}{36288\ 00}$	$\frac{10700\ 17}{36288\ 00}$
9	$\frac{8183}{10368\ 00}$	$-\frac{25713}{89600}$
10	$-\frac{32504\ 33}{47900\ 1000}$	$\frac{26842\ 253}{95800\ 320}$
11	$\frac{4671}{78848\ 0}$	$-\frac{47772\ 23}{17418\ 240}$
12	$-\frac{13695\ 77909\ 3}{26153\ 48736\ 000}$	$\frac{70360\ 42543\ 57}{26153\ 48736\ 000}$
13	$\frac{22242\ 34463}{47551\ 79520\ 00}$	$-\frac{10636\ 47638\ 17}{40236\ 13440\ 00}$
14	$-\frac{13228\ 28401\ 27}{31384\ 18483\ 2000}$	$\frac{11663\ 09819\ 657}{44834\ 54976\ 000}$

‡ these are called "logarithmic numbers"

we can take $|v_4| > 1$.

$-v_4 + 4aM + a^2$, and

$) - G(-a)$.

type 2 ‡‡

$+ 2$ $G(a)$.

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$M^2 + 4a^3M$

$+ 2a^2 + G(a)$.

$- 4a^2 - 2G(a)\Big]$.

nically increasing for
at P_{12} lies to the left
ves C of Theorem II.

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type 2

n	$B_n^{(n)}(1)/n!$	$B_n^{(n)}/n!$
15	26396 51053 68976 23040 00	−25221 445 98402 304
16	−11195 67034 48001 32011 86852 86400 00	80929 89203 53324 9 32011 86852 86400 00
17	50188 465 15613 16556 8	−85455 47771 5379 34237 29254 40000
18	−23340 28946 34446 3 78601 44949 49376 000	12600 46723 60427 56559 51090 94217 17094 40000
19	30112 40351 85049 10928 54378 00448 000	−13115 46499 95723 6437 53779 93912 81152 0000
20	−12365 72232 34699 80029 48171 45976 18974 72000 00	81368 36498 46758 25997 87 33720 02183 33282 30400 000

National Bureau of Standards,
Mathematical Tables Project, New York City

TABLE OF $Ji_0(x)$

By Arnold

Requests for the investi
matical Tables Project fro
of the integral in various
tabular values of the func
related functions and an

I. Derivation of Series E

From the known expan

$$\int_x^\infty (J_0(t)/t)\,dt = \int_x^\infty \left[(1\right.$$

=

where

$$K = \lim_{t\to\infty}$$

To determine K, make

$$J_0(t$$

Hence

$$Ji_0(x) =$$

=

Now

$$Ci(x) = -\int_x^$$

[1] The results reported here
matical Tables Project conduc
under the sponsorship of the N

[2] The notation $Ji_0(x)$ for th
this issue.