

Table 1: Taylor coefficients computed with Faa di Bruno's formula and the ODE formula at point $z_0 = (1, -1)$, $z_k = (1, 1)$ for $k \geq 1$. Table 3 from [1].

Real parts		
k	Faa di Bruno	ODE formula
0	-1.1370378783511976	-1.1370378783511976
1	3.4197723463092786	3.4197723463092786
2	0.63385523739911109	0.63385523739911109
3	-7.7426737267258536	-7.7426737267258572
4	0.11262506649411641	0.11262506649410635
5	7.6025327623397887	7.6025327623397931
6	4.6486447372983308	4.6486447372984117
7	-3.7452559474068914	-3.7452559474069109
8	-8.1522042588897659	-8.1522042588897268
16	—	-7.6594698796115681
24	—	-11.553710500315182
32	—	-3.3750448028851712
Imaginary parts		
0	2.0268137918541949	2.0268137918541949
1	-6.9788760003212680	-6.9788760003212680
2	9.2529517570236628	9.2529517570236628
3	-0.71735395717035411	-0.71735395717035055
4	-7.9017425624541966	-7.9017425624542019
5	-2.0301144585662287	-2.0301144585662163
6	6.3800198863196105	6.3800198863196247
7	7.0906337362182299	7.0906337362181615
8	0.30941798315109609	0.30941798315115826
16	—	-5.9248272421070105
24	—	-0.24434435257811679
32	—	13.209342785534295

References:

- [1] Optimized higher-order differentiation for the Faddeeva function
- [2] I. Charpentier, C. Dal Cappello / Comput Phys Commun 189(2015)66-71

Table 2: Taylor coefficients of the Bessel function J_n of order $n = 5$ and the identity 9.1.27 for x such that $x_k = 1$ for $k = 0, \dots, 32$. Table 5 from [2].

k	$J_5(x)$ (Faà di Bruno)	$J_5(x)$ (ODE)	$J_4(x) + J_6(x) = \frac{10}{x} J_5(x)$ (ODE)
0	2.4975773021123450E-004	2.4975773021123450E-004	-4.3368086899420177E-019
1	1.2278503130537829E-003	1.2278503130537834E-003	-3.4694469519536142E-018
2	3.6110179190617046E-003	3.6110179190617054E-003	-3.4694469519536142E-018
3	8.2345248756974607E-003	8.2345248756974642E-003	-1.3877787807814457E-017
4	1.6044438141662891E-002	1.6044438141662901E-002	-4.1633363423443370E-017
5	2.8042876170194669E-002	2.8042876170194679E-002	-6.9388939039072284E-017
6	4.5227421312673717E-002	4.5227421312673738E-002	5.5511151231257827E-017
7	6.8526014522215933E-002	6.8526014522215947E-002	1.1102230246251565E-016
8	9.8728760784219438E-002	9.8728760784219480E-002	-3.8857805861880479E-016
16	0.0000000000000000	0.58431789658444311	2.3314683517128287E-015
24	-0.0000000000000000	0.67943037642221460	1.2212453270876722E-015
32	-0.0000000000000000	-2.4047365958756206	-6.2172489379008766E-015

Table 3: Taylor coefficients of $T_n \circ \cos(\theta)$ and $\cos(n\theta)$ for $n = 10$, $\theta_0 = 7/13$ and $\theta_k = 1$ for $k=1, \dots, 32$. Table 6 from [2].

k	$T_n(\cos(\theta))$ (ODE)	$\cos(n\theta)$ (HOAD on Identity)
0	0.62272955039330802	0.62272955039330702
1	7.8243715854178895	7.8243715854178966
2	-23.312105934247498	-23.312105934247455
3	-184.85477654421103	-184.85477654421106
4	-217.33299424726133	-217.33299424726169
5	790.75485240530440	790.75485240530304
6	3538.0391869896403	3538.0391869896393
7	6092.9224122389105	6092.9224122389123
8	1468.2355283621844	1468.2355283622262
8	1468.2355283621844	1468.2355283622262
16	2227573.0108542801	2227573.0108543020
24	-50059799.548055202	-50059799.548048459
32	782516993.25231373	782516993.25201499

Table 4: Real and imaginary parts of the Taylor coefficients of ${}_2F_1(a, b; b; z)$ and $(1 - z)^{-a}$ for $a = 1.3$, $b = 1.2$ and $z_0 = (.4d0, .8d0)$ and $z_k = (1.d0, 0.d0)$ for $k = 1, \dots, 32$. Table 7 from [7].

Real parts			
k	Faa di Bruno	ODE formula	$(1 - z) * (-a)$
0	0.35724123124776308	0.35724123124776308	0.35724123124776308
1	-0.69272447916145130	-0.69272447916145141	-0.69272447916145174
2	-1.4900354219582084	-1.4900354219582090	-1.4900354219582090
3	-1.0905502908455993	-1.0905502908455997	-1.0905502908455993
4	0.35515701127475929	0.35515701127475885	0.35515701127475940
5	1.6944417747600535	1.6944417747600533	1.6944417747600542
8	-1.4817777960455560	-1.4817777960455540	-1.4817777960455569
16	0.0000000000000000	-2.4473533672175929	-2.4473533672175951
24	-0.0000000000000000	-0.29493306130322811	-0.29493306130322017
32	-0.0000000000000000	2.7243853947666996	2.7243853947667143
Imaginary parts			
0	0.93401215339875654	0.93401215339875654	0.93401215339875654
1	1.1000603601487036	1.1000603601487038	1.1000603601487036
2	0.12173512767407016	0.12173512767407035	0.12173512767406969
3	-1.2308859870583373	-1.2308859870583380	-1.2308859870583380
4	-1.7317947117798427	-1.7317947117798436	-1.7317947117798433
5	-0.80024829113098384	-0.80024829113098495	-0.80024829113098428
8	1.5285447205673384	1.5285447205673397	1.5285447205673388
16	0.0000000000000000	-0.84990151594371177	-0.84990151594371799
24	-0.0000000000000000	-2.8993287192846058	-2.8993287192846160
32	-0.0000000000000000	-1.6219717342440676	-1.6219717342440632