

Table 19.3

AUXILIARY FUNCTIONS

The functions ϑ_1 , ϑ_2 , ϑ_3 of 19.10 and 19.23 are needed in Darwin's expansion and also the function τ of 19.7 and 19.20.

ξ	ϑ_1	ϑ_3	τ	ξ	ϑ_1	ϑ_2	τ
0.0	0.00000	0.39270	-0.70270	5.0	6.9519	5.5506	4.1079
0.1	0.05008	0.34278	-0.64181	5.1	7.2093	5.7981	4.2291
0.2	0.10066	0.29337	-0.57855	5.2	7.4716	6.0507	4.3511
0.3	0.15222	0.24498	-0.51304	5.3	7.7388	6.3084	4.4738
0.4	0.20521	0.19817	-0.44540	5.4	8.0109	6.5712	4.5972
0.5	0.26006	0.15355	-0.37574	5.5	8.2880	6.8391	4.7213
0.6	0.31713	0.11182	-0.30415	5.6	8.5700	7.1120	4.8461
0.7	0.37678	0.07387	-0.23071	5.7	8.8569	7.3901	4.9716
0.8	0.43929	0.04088	-0.15549	5.8	9.1487	7.6732	5.0977
0.9	0.50492	0.01468	-0.07857	5.9	9.4454	7.9614	5.2246
ξ	ϑ_1	ϑ_2	τ	ξ	ϑ_1	ϑ_2	τ
1.0	0.57390	0.00000	0.00000	6.0	9.7471	8.2546	5.3521
1.1	0.64640	0.01513	0.08015	6.1	10.0537	8.5530	5.4803
1.2	0.72261	0.04341	0.16185	6.2	10.3652	8.8564	5.6092
1.3	0.80265	0.08086	0.24502	6.3	10.6817	9.1649	5.7387
1.4	0.88666	0.12617	0.32964	6.4	11.0031	9.4784	5.8688
1.5	0.97473	0.17866	0.41566	6.5	11.3295	9.7970	5.9996
1.6	1.06696	0.23786	0.50304	6.6	11.6608	10.1207	6.1310
1.7	1.16344	0.30347	0.59175	6.7	11.9970	10.4494	6.2631
1.8	1.26422	0.37527	0.68175	6.8	12.3382	10.7832	6.3958
1.9	1.36937	0.45309	0.77300	6.9	12.6843	11.1220	6.5290
2.0	1.47894	0.53679	0.86549	7.0	13.0354	11.4659	6.6629
2.1	1.59299	0.62626	0.95917	7.1	13.3914	11.8148	6.7974
2.2	1.71155	0.72142	1.05403	7.2	13.7524	12.1688	6.9325
2.3	1.83466	0.82220	1.15004	7.3	14.1183	12.5278	7.0682
2.4	1.96236	0.92853	1.24716	7.4	14.4892	12.8919	7.2045
2.5	2.09467	1.04036	1.34539	7.5	14.8651	13.2610	7.3414
2.6	2.23163	1.15764	1.44470	7.6	15.2459	13.6352	7.4789
2.7	2.37325	1.28034	1.54506	7.7	15.6316	14.0144	7.6169
2.8	2.51956	1.40843	1.64646	7.8	16.0223	14.3987	7.7555
2.9	2.67058	1.54187	1.74888	7.9	16.4180	14.7880	7.8947
3.0	2.82632	1.68063	1.85229	8.0	16.8186	15.1823	8.0344
3.1	2.98681	1.82470	1.95669	8.1	17.2242	15.5817	8.1747
3.2	3.15205	1.97406	2.06206	8.2	17.6348	15.9861	8.3155
3.3	3.32207	2.12867	2.16837	8.3	18.0503	16.3956	8.4569
3.4	3.49688	2.28853	2.27562	8.4	18.4708	16.8101	8.5989
3.5	3.67648	2.45363	2.38378	8.5	18.8962	17.2296	8.7413
3.6	3.86089	2.62394	2.49285	8.6	19.3266	17.6542	8.8844
3.7	4.05011	2.79946	2.60281	8.7	19.7620	18.0838	9.0279
3.8	4.24416	2.98017	2.71365	8.8	20.2024	18.5184	9.1720
3.9	4.44305	3.16606	2.82536	8.9	20.6477	18.9581	9.3166
4.0	4.64678	3.35712	2.93791	9.0	21.0980	19.4028	9.4617
4.1	4.85537	3.55335	3.05131	9.1	21.5532	19.8525	9.6074
4.2	5.06880	3.75474	3.16554	9.2	22.0135	20.3073	9.7535
4.3	5.28711	3.96127	3.28058	9.3	22.4787	20.7671	9.9002
4.4	5.51028	4.17295	3.39643	9.4	22.9488	21.2319	10.0474
4.5	5.73833	4.38976	3.51308	9.5	23.4240	21.7017	10.1951
4.6	5.97126	4.61169	3.63051	9.6	23.9041	22.1766	10.3433
4.7	6.20908	4.83875	3.74872	9.7	24.3892	22.6565	10.4920
4.8	6.45178	5.07093	3.86770	9.8	24.8792	23.1414	10.6411
4.9	6.69938	5.30822	3.98743	9.9	25.3742	23.6314	10.7908
5.0	6.95188	5.55062	4.10792	10.0	25.8742	24.1264	10.9410
	$\begin{bmatrix} (-4)6 \\ 4 \end{bmatrix}$	$\begin{bmatrix} (-3)2 \\ 6 \end{bmatrix}$	$\begin{bmatrix} (-4)3 \\ 3 \end{bmatrix}$		$\begin{bmatrix} (-4)6 \\ 3 \end{bmatrix}$	$\begin{bmatrix} (-4)7 \\ 3 \end{bmatrix}$	$\begin{bmatrix} (-4)1 \\ 3 \end{bmatrix}$

When interpolating for ϑ_2 and ϑ_3 for ξ near unity, it is better to interpolate for τ and then use

$$\vartheta_2 = \frac{2}{3}\tau^{3/2} \text{ or } \vartheta_3 = \frac{2}{3}(-\tau)^{3/2}.$$