

Graphical representations of the one-term approximations are presented in [Appendix 11-7](#).

Table 16.6 Coefficients Used in the One-Term Approximation to the Series Solution for Transient, One-Dimensional Conduction in the Infinite Cylinder and Sphere

Bi^a	Infinite Cylinder		Sphere	
	ζ	C	ζ	C
0.01	0.1412	1.0025	0.1730	1.0030
0.02	0.1995	1.0050	0.2445	1.0060
0.03	0.2439	1.0075	0.2989	1.0090
0.04	0.2814	1.0099	0.3450	1.0120
0.05	0.3142	1.0124	0.3852	1.0149
0.06	0.3438	1.0148	0.4217	1.0179
0.07	0.3708	1.0173	0.4550	1.0209
0.08	0.3960	1.0197	0.4860	1.0239
0.09	0.4195	1.0222	0.5150	1.0268
0.10	0.4417	1.0246	0.5423	1.0298
0.15	0.5376	1.0365	0.6608	1.0445
0.20	0.6170	1.0483	0.7593	1.0592
0.25	0.6856	1.0598	0.8448	1.0737
0.30	0.7465	1.0712	0.9208	1.0880
0.4	0.8516	1.0932	1.0528	1.1164
0.5	0.9408	1.1143	1.1656	1.1441
0.6	1.0185	1.1346	1.2644	1.1713
0.7	1.0873	1.1539	1.3525	1.1978
0.8	1.1490	1.1725	1.4320	1.2236
0.9	1.2048	1.1902	1.5044	1.2488
1.0	1.2558	1.2071	1.5708	1.2732
2.0	1.5995	1.3384	2.0288	1.4793
3.0	1.7887	1.4191	2.2889	1.6227
4.0	1.9081	1.4698	2.4556	1.7201
5.0	1.9898	1.5029	2.5704	1.7870
6.0	2.0490	1.5253	2.6537	1.8338
7.0	2.0937	1.5411	2.7165	1.8674
8.0	2.1286	1.5526	2.7654	1.8921
9.0	2.1566	1.5611	2.8044	1.9106
10.0	2.1795	1.5677	2.8363	1.9249
20.0	2.2881	1.5919	2.9857	1.9781
30.0	2.3261	1.5973	3.0372	1.9898
40.0	2.3455	1.5993	3.0632	1.9942
50.0	2.3572	1.6002	3.0788	1.9962
100.0	2.3809	1.6015	3.1102	1.9990
∞	2.4050	1.6018	3.1415	2.0000

^a $Bi = hr_o/k$ for the infinite cylinder and sphere. See [Fig. 16.26](#).