

Table 8.4 DERIVATIVE OF THE LEGENDRE FUNCTION—SECOND KIND  $Q'_n(x)$ 

$x$	$Q'_0(x)$	$Q'_1(x)$	$Q'_2(x)$	$Q'_3(x)$	$Q'_4(x)$	$Q'_5(x)$
0.00	1.00000 000	0.00000 000	-2.00000 000	0.00000 000	0.00000 00	-4.06349 21
0.01	1.00010 001	0.02000 133	-1.99959 998	-0.07999 200	0.36520 25	-4.04156 71
0.02	1.00040 016	0.04001 067	-1.99839 968	-0.15993 599	0.72733 83	-3.97600 70
0.03	1.00090 081	0.06003 603	-1.99639 838	-0.23978 392	1.08336 24	-3.86745 44
0.04	1.00160 256	0.08008 546	-1.99359 487	-0.31948 767	1.43027 23	-3.71697 43
0.05	1.00250 627	0.10016 704	-1.98998 747	-0.39899 900	1.76512 98	-3.52604 61
0.06	1.00361 301	0.12028 894	-1.98557 401	-0.47826 951	2.08508 14	-3.29655 13
0.07	1.00492 413	0.14045 936	-1.98035 179	-0.55725 060	2.38737 90	-3.03075 84
0.08	1.00644 122	0.16068 662	-1.97431 766	-0.63589 347	2.66939 94	-2.73130 45
0.09	1.00816 615	0.18097 914	-1.96746 792	-0.71414 899	2.92866 44	-2.40117 40
0.10	1.01010 101	0.20134 545	-1.95979 839	-0.79196 777	3.16285 86	-2.04367 37
0.11	1.01224 820	0.22179 422	-1.95130 431	-0.86930 001	3.36984 76	-1.66240 59
0.12	1.01461 039	0.24233 428	-1.94198 044	-0.94609 554	3.54769 49	-1.26123 82
0.13	1.01719 052	0.26297 462	-1.93182 094	-1.02230 373	3.69467 78	-0.84427 11
0.14	1.01999 184	0.28372 443	-1.92081 942	-1.09787 345	3.80930 18	-0.41580 27
0.15	1.02301 790	0.30459 312	-1.90896 890	-1.17275 302	3.89031 48	+0.01970 77
0.16	1.02627 258	0.32559 031	-1.89626 181	-1.24689 019	3.93671 92	0.45767 92
0.17	1.02976 007	0.34672 587	-1.88268 994	-1.32023 203	3.94778 25	0.89344 90
0.18	1.03348 491	0.36800 997	-1.86824 444	-1.39272 496	3.92304 76	1.32231 56
0.19	1.03745 202	0.38945 305	-1.85291 580	-1.46431 458	3.86234 02	1.73958 08
0.20	1.04166 667	0.41106 589	-1.83669 380	-1.53494 573	3.76577 54	2.14059 45
0.21	1.04613 453	0.43285 960	-1.81956 752	-1.60456 234	3.63376 26	2.52079 94
0.22	1.05086 171	0.45484 568	-1.80152 526	-1.67310 742	3.46700 84	2.87577 54
0.23	1.05585 471	0.47703 605	-1.78255 455	-1.74052 294	3.26651 77	3.20128 51
0.24	1.06112 054	0.49944 304	-1.76264 210	-1.80674 982	3.03359 33	3.49331 81
0.25	1.06666 667	0.52207 948	-1.74177 372	-1.87172 780	2.76983 31	3.74813 48
0.26	1.07250 107	0.54495 869	-1.71993 437	-1.93539 537	2.47712 56	3.96230 97
0.27	1.07863 229	0.56809 454	-1.69710 801	-1.99768 972	2.15764 35	4.13277 26
0.28	1.08506 944	0.59150 152	-1.67327 761	-2.05854 661	1.81383 48	4.25684 84
0.29	1.09182 225	0.61519 472	-1.64842 510	-2.11790 027	1.44841 22	4.33229 46
0.30	1.09890 110	0.63918 993	-1.62253 126	-2.17568 334	1.06434 02	4.35733 72
0.31	1.10631 707	0.66350 370	-1.59557 570	-2.23182 672	0.66482 02	4.33070 22
0.32	1.11408 200	0.68815 335	-1.56753 678	-2.28625 944	+0.25327 32	4.25164 55
0.33	1.12220 851	0.71315 706	-1.53839 152	-2.33890 860	-0.16667 95	4.11997 79
0.34	1.13071 009	0.73853 396	-1.50811 553	-2.38969 914	-0.59123 78	3.93608 76
0.35	1.13960 114	0.76430 415	-1.47668 292	-2.43855 378	-1.01644 63	3.70095 66
0.36	1.14889 706	0.79048 884	-1.44406 617	-2.48539 281	-1.43822 04	3.41617 42
0.37	1.15861 430	0.81711 039	-1.41023 606	-2.53013 394	-1.85237 43	3.08394 42
0.38	1.16877 045	0.84419 242	-1.37516 155	-2.57269 210	-2.25465 05	2.70708 74
0.39	1.17938 436	0.87175 994	-1.33880 960	-2.61297 926	-2.64075 25	2.28903 82
0.40	1.19047 619	0.89983 941	-1.30114 509	-2.65090 420	-3.00637 81	1.83383 54
0.41	1.20206 756	0.92845 892	-1.26213 064	-2.68637 229	-3.34725 61	1.34610 61
0.42	1.21418 164	0.95764 831	-1.22172 641	-2.71928 520	-3.65918 35	0.83104 35
0.43	1.22684 333	0.98743 931	-1.17988 995	-2.74954 067	-3.93806 51	+0.29437 81
0.44	1.24007 937	1.01786 572	-1.13657 597	-2.77703 216	-4.17995 45	-0.25765 92
0.45	1.25391 850	1.04896 360	-1.09173 613	-2.80164 855	-4.38109 69	-0.81838 00
0.46	1.26839 168	1.08077 146	-1.04531 874	-2.82327 375	-4.53797 26	-1.38069 01
0.47	1.28353 228	1.11333 051	-0.99726 854	-2.84178 630	-4.64734 21	-1.93714 78
0.48	1.29937 630	1.14668 490	-0.94752 634	-2.85705 896	-4.70629 25	-2.48003 04
0.49	1.31596 263	1.18088 202	-0.89602 868	-2.86895 817	-4.71228 35	-3.00140 86
0.50	1.33333 333	1.21597 281	-0.84270 745	-2.87734 353	-4.66319 54	-3.49322 79
	$\left[ \begin{smallmatrix} (-4)1 \\ 5 \end{smallmatrix} \right]$	$\left[ \begin{smallmatrix} (-4)1 \\ 5 \end{smallmatrix} \right]$	$\left[ \begin{smallmatrix} (-4)2 \\ 5 \end{smallmatrix} \right]$	$\left[ \begin{smallmatrix} (-4)4 \\ 5 \end{smallmatrix} \right]$	$\left[ \begin{smallmatrix} (-3)7 \\ 6 \end{smallmatrix} \right]$	$\left[ \begin{smallmatrix} (-3)6 \\ 6 \end{smallmatrix} \right]$

**Table 8.4**

$x$	$Q_0(x)$	$Q_1(x)$	$Q_2(x)$	$Q_3(x)$	$Q_4(x)$	$Q_5(x)$
0.50	1.33333 333	1.21597 281	- 0.84270 74	- 2.87734 35	- 4.66319 54	- 3.493228
0.51	1.35153 399	1.25201 210	- 0.78748 95	- 2.88206 72	- 4.55737 62	- 3.947399
0.52	1.37061 403	1.28905 905	- 0.73029 59	- 2.88297 33	- 4.39368 94	- 4.355894
0.53	1.39062 717	1.32717 756	- 0.67104 20	- 2.87989 70	- 4.17156 11	- 4.710854
0.54	1.41163 185	1.36643 680	- 0.60963 61	- 2.87266 39	- 3.89102 65	- 5.004695
0.55	1.43369 176	1.40691 178	- 0.54597 91	- 2.86108 89	- 3.55277 54	- 5.230233
0.56	1.45687 646	1.44868 400	- 0.47996 38	- 2.84497 53	- 3.15819 61	- 5.380807
0.57	1.48126 204	1.49184 220	- 0.41147 39	- 2.82411 36	- 2.70941 73	- 5.450406
0.58	1.50693 189	1.53648 320	- 0.34038 30	- 2.79828 02	- 2.20934 79	- 5.433812
0.59	1.53397 760	1.58271 285	- 0.26655 35	- 2.76723 56	- 1.66171 26	- 5.326732
0.60	1.56250 000	1.63064 718	- 0.18983 51	- 2.73072 34	- 1.07108 51	- 5.125950
0.61	1.59261 029	1.68041 364	- 0.11006 36	- 2.68846 75	- 0.44291 60	- 4.829465
0.62	1.62443 145	1.73215 259	- 0.02705 91	- 2.64017 05	+ 0.21644 47	- 4.436645
0.63	1.65809 982	1.78601 903	+ 0.05937 63	- 2.58551 08	0.89973 10	- 3.948368
0.64	1.69376 694	1.84218 458	0.14946 05	- 2.52414 00	1.59875 12	- 3.367169
0.65	1.73160 173	1.90083 983	0.24343 42	- 2.45567 92	2.30438 77	- 2.697375
0.66	1.77179 305	1.96219 705	0.34156 40	- 2.37971 49	3.00660 55	- 1.945245
0.67	1.81455 271	2.02649 344	0.44414 64	- 2.29579 49	3.69447 22	- 1.119087
0.68	1.86011 905	2.09399 499	0.55151 17	- 2.20342 26	4.35619 14	- 0.229371
0.69	1.90876 121	2.16500 099	0.66402 96	- 2.10205 04	4.97914 99	+ 0.711177
0.70	1.96078 431	2.23984 955	0.78211 54	- 1.99107 23	5.54998 34	1.687501
0.71	2.01653 559	2.31892 413	0.90623 72	- 1.86981 51	6.05466 05	2.682165
0.72	2.07641 196	2.40266 159	1.03692 51	- 1.73752 72	6.47859 09	3.675339
0.73	2.14086 919	2.49156 187	1.17478 21	- 1.59336 54	6.80675 90	4.644816
0.74	2.21043 324	2.58619 998	1.32049 75	- 1.43637 96	7.02388 88	5.566082
0.75	2.28571 429	2.68724 079	1.47486 32	- 1.26549 27	7.11464 51	6.412431
0.76	2.36742 424	2.79545 751	1.63879 46	- 1.07947 65	7.06387 68	7.155161
0.77	2.45639 892	2.91175 493	1.81335 60	- 0.87692 20	6.85691 02	7.763836
0.78	2.55362 615	3.03719 894	1.99979 32	- 0.65620 16	6.47990 33	8.206652
0.79	2.66028 199	3.17305 446	2.19957 51	- 0.41542 09	5.92027 14	8.450921
0.80	2.77777 778	3.32083 451	2.41444 73	- 0.15235 72	5.16720 18	8.463693
0.81	2.90782 204	3.48236 488	2.64650 26	+ 0.13562 04	4.21227 67	8.212559
0.82	3.05250 305	3.65986 997	2.89827 40	0.45165 68	3.05023 28	7.666669
0.83	3.21440 051	3.85608 883	3.17286 02	0.79955 16	1.67989 36	6.798024
0.84	3.39673 913	4.07443 439	3.47409 64	1.18395 08	+ 0.10532 57	5.583115
0.85	3.60360 360	4.31921 588	3.80679 33	1.61061 19	- 1.66270 85	4.005017
0.86	3.84024 578	4.59595 604	4.17707 50	2.08677 72	- 3.60489 91	+ 2.056070
0.87	4.11353 352	4.91185 380	4.59287 14	2.62171 45	- 5.69098 02	- 0.258625
0.88	4.43262 411	5.27647 688	5.06465 07	3.22751 63	- 7.87652 81	- 2.916594
0.89	4.81000 481	5.70283 015	5.60654 69	3.92032 16	-10.09858 18	- 5.871760
0.90	5.26315 789	6.20906 159	6.23815 05	4.72224 63	-12.26944 98	- 9.045801
0.91	5.81733 566	6.82129 988	6.98747 73	5.66456 11	-14.26758 89	-12.315713
0.92	6.51041 667	7.57861 025	7.89613 09	6.79318 58	-15.92348 54	-15.495090
0.93	7.40192 450	8.54217 980	9.02883 27	8.17876 62	-16.99643 22	-18.304274
0.94	8.59106 529	9.81365 072	10.49236 44	9.93658 04	-17.13329 84	-20.319071
0.95	10.25641 026	11.57537 057	12.47698 56	12.26978 50	-15.78782 62	-20.873659
0.96	12.75510 204	14.19080 811	15.35932 33	15.57616 37	-12.04072 38	-18.851215
0.97	16.92047 377	18.50515 528	20.00905 43	20.76422 38	- 4.11777 87	-12.140718
0.98	25.25252 525	27.04503 467	29.00735 14	30.50045 90	+12.32933 89	+ 4.242107
0.99	50.25125 628	52.39539 613	55.11181 39	57.80864 53	54.86521 05	49.428990
1.00	$\infty$	$\infty$	$\infty$	$\infty$	$\infty$	$\infty$