## Table 3.1 POWERS AND ROOTS $n^k$

See Examples 1–5 for use of the table.

Floating decimal notation:

$9^{10} = 34867\ 84401$

$= (9)3.4867\ 84401$

| $k$ | | | | | |
|---|---|---|---|---|---|
| 1 | $n^1=$ | 2 | 3 | | 4 |
| 2 | $n^2=$ | 4 | 9 | | 16 |
| 3 | $n^3=$ | 8 | 27 | | 64 |
| 4 | $n^4=$ | 16 | 81 | | 256 |
| 5 | $n^5=$ | 32 | 243 | | 1024 |
| 6 | $n^6=$ | 64 | 729 | | 4096 |
| 7 | $n^7=$ | 128 | 2187 | | 16384 |
| 8 | $n^8=$ | 256 | 6561 | | 65536 |
| 9 | $n^9=$ | 512 | 19683 | 2 | 62144 |
| 10 | $n^{10}=$ | 1024 | 59049 | 10 | 48576 |
| 24 | $n^{24}=$ | 167 77216 | (11)2.8242 95365 | (14)2.8147 | 49767 |
| 1/2 | $n^{1/2}=$ | 1.4142 13562 | 1.7320 50808 | 2.0000 | 00000 |
| 1/3 | $n^{1/3}=$ | 1.2599 21050 | 1.4422 49570 | 1.5874 | 01052 |
| 1/4 | $n^{1/4}=$ | 1.1892 07115 | 1.3160 74013 | 1.4142 | 13562 |
| 1/5 | $n^{1/5}=$ | 1.1486 98355 | 1.2457 30940 | 1.3195 | 07911 |

| $k$ | | | | | |
|---|---|---|---|---|---|
| 1 | 5 | 6 | 7 | 8 | 9 |
| 2 | 25 | 36 | 49 | 64 | 81 |
| 3 | 125 | 216 | 343 | 512 | 729 |
| 4 | 625 | 1296 | 2401 | 4096 | 6561 |
| 5 | 3125 | 7776 | 16807 | 32768 | 59049 |
| 6 | 15625 | 46656 | 1 17649 | 2 62144 | 5 31441 |
| 7 | 78125 | 2 79936 | 8 23543 | 20 97152 | 47 82969 |
| 8 | 3 90625 | 16 79616 | 57 64801 | 167 77216 | 430 46721 |
| 9 | 19 53125 | 100 77696 | 403 53607 | 1342 17728 | 3874 20489 |
| 10 | 97 65625 | 604 66176 | 2824 75249 | (9)1.0737 41824 | (9)3.4867 84401 |
| 24 | (16)5.9604 64478 | (18)4.7383 81338 | (20)1.9158 12314 | (21)4.7223 66483 | (22)7.9766 44308 |
| 1/2 | 2.2360 67977 | 2.4494 89743 | 2.6457 51311 | 2.8284 27125 | 3.0000 00000 |
| 1/3 | 1.7099 75947 | 1.8171 20593 | 1.9129 31183 | 2.0000 00000 | 2.0800 83823 |
| 1/4 | 1.4953 48781 | 1.5650 84580 | 1.6265 76562 | 1.6817 92831 | 1.7320 50808 |
| 1/5 | 1.3797 29662 | 1.4309 69081 | 1.4757 73162 | 1.5157 16567 | 1.5518 45574 |

| $k$ | | | | | |
|---|---|---|---|---|---|
| 1 | 10 | 11 | 12 | 13 | 14 |
| 2 | 100 | 121 | 144 | 169 | 196 |
| 3 | 1000 | 1331 | 1728 | 2197 | 2744 |
| 4 | 10000 | 14641 | 20736 | 28561 | 38416 |
| 5 | 1 00000 | 1 61051 | 2 48832 | 3 71293 | 5 37824 |
| 6 | 10 00000 | 17 71561 | 29 85984 | 48 26809 | 75 29536 |
| 7 | 100 00000 | 194 87171 | 358 31808 | 627 48517 | 1054 13504 |
| 8 | 1000 00000 | 2143 58881 | 4299 81696 | 8157 30721 | (9)1.4757 89056 |
| 9 | (9)1.0000 00000 | (9)2.3579 47691 | (9)5.1597 80352 | (10)1.0604 49937 | (10)2.0661 04678 |
| 10 | (10)1.0000 00000 | (10)2.5937 42460 | (10)6.1917 36422 | (11)1.3785 84918 | (11)2.8925 46550 |
| 24 | (24)1.0000 00000 | (24)9.8497 32676 | (25)7.9496 84720 | (26)5.4280 07704 | (27)3.2141 99700 |
| 1/2 | 3.1622 77660 | 3.3166 24790 | 3.4641 01615 | 3.6055 51275 | 3.7416 57387 |
| 1/3 | 2.1544 34690 | 2.2239 80091 | 2.2894 28485 | 2.3513 34688 | 2.4101 42264 |
| 1/4 | 1.7782 79410 | 1.8211 60287 | 1.8612 09718 | 1.8988 28922 | 1.9343 36420 |
| 1/5 | 1.5848 93192 | 1.6153 94266 | 1.6437 51830 | 1.6702 77652 | 1.6952 18203 |

| $k$ | | | | | |
|---|---|---|---|---|---|
| 1 | 15 | 16 | 17 | 18 | 19 |
| 2 | 225 | 256 | 289 | 324 | 361 |
| 3 | 3375 | 4096 | 4913 | 5832 | 6859 |
| 4 | 50625 | 65536 | 83521 | 1 04976 | 1 30321 |
| 5 | 7 59375 | 10 48576 | 14 19857 | 18 89568 | 24 76099 |
| 6 | 113 90625 | 167 77216 | 241 37569 | 340 12224 | 470 45881 |
| 7 | 1708 59375 | 2684 35456 | 4103 38673 | 6122 20032 | 8938 71739 |
| 8 | (9)2.5628 90625 | (9)4.2949 67296 | (9)6.9757 57441 | (10)1.1019 96058 | (10)1.6983 56304 |
| 9 | (10)3.8443 35938 | (10)6.8719 47674 | (11)1.1858 78765 | (11)1.9835 92904 | (11)3.2268 76978 |
| 10 | (11)5.7665 03906 | (12)1.0995 11628 | (12)2.0159 93900 | (12)3.5704 67227 | (12)6.1310 66258 |
| 24 | (28)1.6834 11220 | (28)7.9228 16251 | (29)3.3944 86713 | (30)1.3382 58845 | (30)4.8987 62931 |
| 1/2 | 3.8729 83346 | 4.0000 00000 | 4.1231 05626 | 4.2426 40687 | 4.3588 98944 |
| 1/3 | 2.4662 12074 | 2.5198 42100 | 2.5712 81591 | 2.6207 41394 | 2.6684 01649 |
| 1/4 | 1.9679 89671 | 2.0000 00000 | 2.0305 43185 | 2.0597 67144 | 2.0877 97630 |
| 1/5 | 1.7187 71928 | 1.7411 01127 | 1.7623 40348 | 1.7826 02458 | 1.8019 83127 |

| $k$ | | | | | |
|---|---|---|---|---|---|
| 1 | 20 | 21 | 22 | 23 | 24 |
| 2 | 400 | 441 | 484 | 529 | 576 |
| 3 | 8000 | 9261 | 10648 | 12167 | 13824 |
| 4 | 1 60000 | 1 94481 | 2 34256 | 2 79841 | 3 31776 |
| 5 | 32 00000 | 40 84101 | 51 53632 | 64 36343 | 79 62624 |
| 6 | 640 00000 | 857 66121 | 1133 79904 | 1480 35889 | 1911 02976 |
| 7 | (9)1.2800 00000 | (9)1.8010 88541 | (9)2.4943 57888 | (9)3.4048 25447 | (9)4.5864 71424 |
| 8 | (10)2.5600 00000 | (10)3.7822 85936 | (10)5.4875 87354 | (10)7.8310 98528 | (11)1.1007 53142 |
| 9 | (11)5.1200 00000 | (11)7.9428 00466 | (12)1.2072 69218 | (12)1.8011 52661 | (12)2.6418 07540 |
| 10 | (13)1.0240 00000 | (13)1.6679 88098 | (13)2.6559 92279 | (13)4.1426 51121 | (13)6.3403 38097 |
| 24 | (31)1.6777 21600 | (31)5.4108 19838 | (32)1.6525 10926 | (32)4.8025 07640 | (33)1.3337 35777 |
| 1/2 | 4.4721 35955 | 4.5825 75695 | 4.6904 15760 | 4.7958 31523 | 4.8989 79486 |
| 1/3 | 2.7144 17617 | 2.7589 24176 | 2.8020 39331 | 2.8438 66980 | 2.8844 99141 |
| 1/4 | 2.1147 42527 | 2.1406 95143 | 2.1657 36771 | 2.1899 38703 | 2.2133 63839 |
| 1/5 | 1.8205 64203 | 1.8384 16287 | 1.8556 00736 | 1.8721 71231 | 1.8881 75023 |