

Critical Values of the Chi-Squared (χ^2) Distribution
 Taken from Rholf and Sokal Table 14

| ν | α | .995 | .975 | .9 | .5 | .1 | .05 | .025 | .01 | .005 | .001 | α | ν |
|-------|----------|--------|--------|--------|--------|--------|--------|--------|--------|--------|------|----------|-------|
| 1 | 0.000 | 0.000 | 0.016 | 0.455 | 2.706 | 3.841 | 5.024 | 6.635 | 7.879 | 10.828 | | 1 | |
| 2 | 0.010 | 0.051 | 0.211 | 1.386 | 4.605 | 5.991 | 7.378 | 9.210 | 10.597 | 13.816 | | 2 | |
| 3 | 0.072 | 0.216 | 0.584 | 2.366 | 6.251 | 7.815 | 9.348 | 11.345 | 12.838 | 16.266 | | 3 | |
| 4 | 0.207 | 0.484 | 1.064 | 3.357 | 7.779 | 9.488 | 11.143 | 13.277 | 14.860 | 18.467 | | 4 | |
| 5 | 0.412 | 0.831 | 1.610 | 4.351 | 9.236 | 11.070 | 12.832 | 15.086 | 16.750 | 20.515 | | 5 | |
| 6 | 0.676 | 1.237 | 2.204 | 5.348 | 10.645 | 12.592 | 14.449 | 16.812 | 18.548 | 22.458 | | 6 | |
| 7 | 0.989 | 1.690 | 2.833 | 6.346 | 12.017 | 14.067 | 16.013 | 18.475 | 20.278 | 24.322 | | 7 | |
| 8 | 1.344 | 2.180 | 3.490 | 7.344 | 13.362 | 15.507 | 17.535 | 20.090 | 21.955 | 26.124 | | 8 | |
| 9 | 1.735 | 2.700 | 4.168 | 8.343 | 14.684 | 16.919 | 19.023 | 21.666 | 23.589 | 27.877 | | 9 | |
| 10 | 2.156 | 3.247 | 4.865 | 9.342 | 15.987 | 18.307 | 20.483 | 23.209 | 25.188 | 29.588 | | 10 | |
| 11 | 2.603 | 3.816 | 5.578 | 10.341 | 17.275 | 19.675 | 21.920 | 24.725 | 26.757 | 31.264 | | 11 | |
| 12 | 3.074 | 4.404 | 6.304 | 11.340 | 18.549 | 21.026 | 23.337 | 26.217 | 28.300 | 32.910 | | 12 | |
| 13 | 3.565 | 5.009 | 7.042 | 12.340 | 19.812 | 22.362 | 24.736 | 27.688 | 29.819 | 34.528 | | 13 | |
| 14 | 4.075 | 5.629 | 7.790 | 13.339 | 21.064 | 23.685 | 26.119 | 29.141 | 31.319 | 36.123 | | 14 | |
| 15 | 4.601 | 6.262 | 8.547 | 14.339 | 22.307 | 24.996 | 27.488 | 30.578 | 32.801 | 37.697 | | 15 | |
| 16 | 5.142 | 6.908 | 9.312 | 15.338 | 23.542 | 26.296 | 28.845 | 32.000 | 34.267 | 39.252 | | 16 | |
| 17 | 5.697 | 7.564 | 10.085 | 16.338 | 24.769 | 27.587 | 30.191 | 33.409 | 35.718 | 40.790 | | 17 | |
| 18 | 6.265 | 8.231 | 10.865 | 17.338 | 25.989 | 28.869 | 31.526 | 34.805 | 37.156 | 42.312 | | 18 | |
| 19 | 6.844 | 8.907 | 11.651 | 18.338 | 27.204 | 30.144 | 32.852 | 36.191 | 38.582 | 43.820 | | 19 | |
| 20 | 7.434 | 9.591 | 12.443 | 19.337 | 28.412 | 31.410 | 34.170 | 37.566 | 39.997 | 45.315 | | 20 | |
| 21 | 8.034 | 10.283 | 13.240 | 20.337 | 29.615 | 32.670 | 35.479 | 38.932 | 41.401 | 46.797 | | 21 | |
| 22 | 8.643 | 10.982 | 14.042 | 21.337 | 30.813 | 33.924 | 36.781 | 40.289 | 42.796 | 48.268 | | 22 | |
| 23 | 9.260 | 11.688 | 14.848 | 22.337 | 32.007 | 35.172 | 38.076 | 41.638 | 44.181 | 49.728 | | 23 | |
| 24 | 9.886 | 12.401 | 15.659 | 23.337 | 33.196 | 36.415 | 39.364 | 42.980 | 45.558 | 51.179 | | 24 | |
| 25 | 10.520 | 13.120 | 16.473 | 24.337 | 34.382 | 37.652 | 40.646 | 44.314 | 46.928 | 52.620 | | 25 | |
| 26 | 11.160 | 13.844 | 17.292 | 25.336 | 35.563 | 38.885 | 41.923 | 45.642 | 48.290 | 54.052 | | 26 | |
| 27 | 11.808 | 14.573 | 18.114 | 26.336 | 36.741 | 40.113 | 43.194 | 46.963 | 49.645 | 55.476 | | 27 | |
| 28 | 12.461 | 15.308 | 18.939 | 27.336 | 37.916 | 41.337 | 44.461 | 48.278 | 50.993 | 56.892 | | 28 | |
| 29 | 13.121 | 16.047 | 19.768 | 28.336 | 39.088 | 42.557 | 45.722 | 49.588 | 52.336 | 58.301 | | 29 | |
| 30 | 13.787 | 16.791 | 20.599 | 29.336 | 40.256 | 43.773 | 46.979 | 50.892 | 53.672 | 59.703 | | 30 | |
| 31 | 14.458 | 17.539 | 21.434 | 30.336 | 41.422 | 44.985 | 48.232 | 52.191 | 55.003 | 61.098 | | 31 | |
| 32 | 15.134 | 18.291 | 22.271 | 31.336 | 42.585 | 46.194 | 49.480 | 53.486 | 56.329 | 62.487 | | 32 | |
| 33 | 15.815 | 19.047 | 23.110 | 32.336 | 43.745 | 47.400 | 50.725 | 54.776 | 57.649 | 63.870 | | 33 | |
| 34 | 16.501 | 19.806 | 23.952 | 33.336 | 44.903 | 48.602 | 51.966 | 56.061 | 58.964 | 65.247 | | 34 | |
| 35 | 17.192 | 20.569 | 24.797 | 34.336 | 46.059 | 49.802 | 53.203 | 57.342 | 60.275 | 66.619 | | 35 | |
| 36 | 17.887 | 21.336 | 25.643 | 35.336 | 47.212 | 50.998 | 54.437 | 58.619 | 61.582 | 67.985 | | 36 | |
| 37 | 18.586 | 22.106 | 26.492 | 36.335 | 48.363 | 52.192 | 55.668 | 59.892 | 62.884 | 69.346 | | 37 | |
| 38 | 19.289 | 22.878 | 27.343 | 37.335 | 49.513 | 53.384 | 56.896 | 61.162 | 64.182 | 70.703 | | 38 | |
| 39 | 19.996 | 23.654 | 28.196 | 38.335 | 50.660 | 54.572 | 58.120 | 62.428 | 65.476 | 72.055 | | 39 | |
| 40 | 20.707 | 24.433 | 29.051 | 39.335 | 51.805 | 55.758 | 59.342 | 63.691 | 66.766 | 73.402 | | 40 | |
| 41 | 21.421 | 25.215 | 29.907 | 40.335 | 52.949 | 56.942 | 60.561 | 64.950 | 68.053 | 74.745 | | 41 | |
| 42 | 22.138 | 25.999 | 30.765 | 41.335 | 54.090 | 58.124 | 61.777 | 66.206 | 69.336 | 76.084 | | 42 | |
| 43 | 22.859 | 26.785 | 31.625 | 42.335 | 55.230 | 59.304 | 62.990 | 67.459 | 70.616 | 77.419 | | 43 | |
| 44 | 23.584 | 27.575 | 32.487 | 43.335 | 56.369 | 60.481 | 64.202 | 68.710 | 71.893 | 78.750 | | 44 | |
| 45 | 24.311 | 28.366 | 33.350 | 44.335 | 57.505 | 61.656 | 65.410 | 69.957 | 73.166 | 80.077 | | 45 | |
| 46 | 25.042 | 29.160 | 34.215 | 45.335 | 58.641 | 62.830 | 66.617 | 71.201 | 74.437 | 81.400 | | 46 | |
| 47 | 25.775 | 29.956 | 35.081 | 46.335 | 59.774 | 64.001 | 67.821 | 72.443 | 75.704 | 82.720 | | 47 | |
| 48 | 26.511 | 30.755 | 35.949 | 47.335 | 60.907 | 65.171 | 69.023 | 73.683 | 76.969 | 84.037 | | 48 | |
| 49 | 27.249 | 31.555 | 36.818 | 48.335 | 62.038 | 66.339 | 70.222 | 74.919 | 78.231 | 85.351 | | 49 | |
| 50 | 27.991 | 32.357 | 37.689 | 49.335 | 63.167 | 67.505 | 71.420 | 76.154 | 79.490 | 86.661 | | 50 | |

| ν | α | .995 | .975 | .9 | .5 | .1 | .05 | .025 | .01 | .005 | .001 | α | ν |
|-------|----------|--------|--------|--------|--------|--------|--------|--------|---------|---------|------|----------|-------|
| 51 | 28.735 | 33.162 | 38.560 | 50.335 | 64.295 | 68.669 | 72.616 | 77.386 | 80.747 | 87.968 | | 51 | |
| 52 | 29.481 | 33.968 | 39.433 | 51.335 | 65.422 | 69.832 | 73.810 | 78.616 | 82.001 | 89.272 | | 52 | |
| 53 | 30.230 | 34.776 | 40.308 | 52.335 | 66.548 | 70.993 | 75.002 | 79.843 | 83.253 | 90.573 | | 53 | |
| 54 | 30.981 | 35.586 | 41.183 | 53.335 | 67.673 | 72.153 | 76.192 | 81.069 | 84.502 | 91.872 | | 54 | |
| 55 | 31.735 | 36.398 | 42.060 | 54.335 | 68.796 | 73.311 | 77.380 | 82.292 | 85.749 | 93.168 | | 55 | |
| 56 | 32.490 | 37.212 | 42.937 | 55.335 | 69.918 | 74.468 | 78.567 | 83.513 | 86.994 | 94.460 | | 56 | |
| 57 | 33.248 | 38.027 | 43.816 | 56.335 | 71.040 | 75.624 | 79.752 | 84.733 | 88.237 | 95.751 | | 57 | |
| 58 | 34.008 | 38.844 | 44.696 | 57.335 | 72.160 | 76.778 | 80.936 | 85.950 | 89.477 | 97.039 | | 58 | |
| 59 | 34.770 | 39.662 | 45.577 | 58.335 | 73.279 | 77.931 | 82.117 | 87.166 | 90.715 | 98.324 | | 59 | |
| 60 | 35.534 | 40.482 | 46.459 | 59.335 | 74.397 | 79.082 | 83.298 | 88.379 | 91.952 | 99.607 | | 60 | |
| 61 | 36.300 | 41.303 | 47.342 | 60.335 | 75.514 | 80.232 | 84.476 | 89.591 | 93.186 | 100.888 | | 61 | |
| 62 | 37.068 | 42.126 | 48.226 | 61.335 | 76.630 | 81.381 | 85.654 | 90.802 | 94.419 | 102.166 | | 62 | |
| 63 | 37.838 | 42.950 | 49.111 | 62.335 | 77.745 | 82.529 | 86.830 | 92.010 | 95.649 | 103.442 | | 63 | |
| 64 | 38.610 | 43.776 | 49.996 | 63.335 | 78.860 | 83.675 | 88.004 | 93.217 | 96.878 | 104.716 | | 64 | |
| 65 | 39.383 | 44.603 | 50.883 | 64.335 | 79.973 | 84.821 | 89.177 | 94.422 | 98.105 | 105.988 | | 65 | |
| 66 | 40.158 | 45.431 | 51.770 | 65.335 | 81.085 | 85.965 | 90.349 | 95.626 | 99.331 | 107.258 | | 66 | |
| 67 | 40.935 | 46.261 | 52.659 | 66.335 | 82.197 | 87.108 | 91.519 | 96.828 | 100.555 | 108.526 | | 67 | |
| 68 | 41.713 | 47.092 | 53.548 | 67.334 | 83.308 | 88.250 | 92.689 | 98.028 | 101.78 | 109.791 | | 68 | |
| 69 | 42.494 | 47.924 | 54.438 | 68.334 | 84.418 | 89.391 | 93.856 | 99.228 | 103.00 | 111.055 | | 69 | |
| 70 | 43.275 | 48.758 | 55.329 | 69.334 | 85.527 | 90.531 | 95.023 | 100.43 | 104.21 | 112.317 | | 70 | |
| 71 | 44.058 | 49.592 | 56.221 | 70.334 | 86.635 | 91.670 | 96.189 | 101.62 | 105.43 | 113.577 | | 71 | |
| 72 | 44.843 | 50.428 | 57.113 | 71.334 | 87.743 | 92.808 | 97.353 | 102.82 | 106.65 | 114.835 | | 72 | |
| 73 | 45.629 | 51.265 | 58.006 | 72.334 | 88.850 | 93.945 | 98.516 | 104.01 | 107.86 | 116.092 | | 73 | |
| 74 | 46.417 | 52.103 | 58.900 | 73.334 | 89.956 | 95.081 | 99.678 | 105.20 | 109.07 | 117.346 | | 74 | |
| 75 | 47.206 | 52.942 | 59.795 | 74.334 | 91.061 | 96.217 | 100.84 | 106.39 | 110.29 | 118.599 | | 75 | |
| 76 | 47.997 | 53.782 | 60.690 | 75.334 | 92.166 | 97.351 | 102.00 | 107.58 | 111.50 | 119.850 | | 76 | |
| 77 | 48.788 | 54.623 | 61.586 | 76.334 | 93.270 | 98.484 | 103.16 | 108.77 | 112.70 | 121.100 | | 77 | |
| 78 | 49.582 | 55.466 | 62.483 | 77.334 | 94.373 | 99.617 | 104.32 | 109.96 | 113.91 | 122.348 | | 78 | |
| 79 | 50.376 | 56.309 | 63.380 | 78.334 | 95.476 | 100.75 | 105.47 | 111.14 | 115.12 | 123.594 | | 79 | |
| 80 | 51.172 | 57.153 | 64.278 | 79.334 | 96.578 | 101.88 | 106.63 | 112.33 | 116.32 | 124.839 | | 80 | |
| 81 | 51.969 | 57.998 | 65.176 | 80.334 | 97.680 | 103.01 | 107.78 | 113.51 | 117.52 | 126.082 | | 81 | |
| 82 | 52.767 | 58.845 | 66.076 | 81.334 | 98.780 | 104.14 | 108.94 | 114.69 | 118.73 | 127.324 | | 82 | |
| 83 | 53.567 | 59.692 | 66.976 | 82.334 | 99.880 | 105.27 | 110.09 | 115.88 | 119.93 | 128.565 | | 83 | |
| 84 | 54.368 | 60.540 | 67.876 | 83.334 | 100.98 | 106.39 | 111.24 | 117.06 | 121.13 | 129.804 | | 84 | |
| 85 | 55.170 | 61.389 | 68.777 | 84.334 | 102.08 | 107.52 | 112.39 | 118.24 | 122.32 | 131.041 | | 85 | |
| 86 | 55.973 | 62.239 | 69.679 | 85.334 | 103.18 | 108.65 | 113.54 | 119.41 | 123.52 | 132.277 | | 86 | |
| 87 | 56.777 | 63.089 | 70.581 | 86.334 | 104.28 | 109.77 | 114.69 | 120.59 | 124.72 | 133.512 | | 87 | |
| 88 | 57.582 | 63.941 | 71.484 | 87.334 | 105.37 | 110.90 | 115.84 | 121.77 | 12 | | | | |