

## Critical Values for Student's t-Distribution By [Calculatorshub.io](https://calculatorshub.io)

Critical Values for Student's t-Distribution Upper Tail Probability:  $\Pr(T > t)$

| df | 0.2   | 0.1   | 0.05  | 0.04  | 0.03   | 0.025  | 0.02   | 0.01   | 0.005  | 0.0005  |
|----|-------|-------|-------|-------|--------|--------|--------|--------|--------|---------|
| 1  | 1.376 | 3.078 | 6.314 | 7.916 | 10.579 | 12.706 | 15.895 | 31.821 | 63.657 | 636.619 |
| 2  | 1.061 | 1.886 | 2.920 | 3.320 | 3.896  | 4.303  | 4.849  | 6.965  | 9.925  | 31.599  |
| 3  | 0.978 | 1.638 | 2.353 | 2.605 | 2.951  | 3.182  | 3.482  | 4.541  | 5.841  | 12.924  |
| 4  | 0.941 | 1.533 | 2.132 | 2.333 | 2.601  | 2.776  | 2.999  | 3.747  | 4.604  | 8.610   |
| 5  | 0.920 | 1.476 | 2.015 | 2.191 | 2.422  | 2.571  | 2.757  | 3.365  | 4.032  | 6.869   |
| 6  | 0.906 | 1.440 | 1.943 | 2.104 | 2.313  | 2.447  | 2.612  | 3.143  | 3.707  | 5.959   |
| 7  | 0.896 | 1.415 | 1.895 | 2.046 | 2.241  | 2.365  | 2.517  | 2.998  | 3.499  | 5.408   |
| 8  | 0.889 | 1.397 | 1.860 | 2.004 | 2.189  | 2.306  | 2.449  | 2.896  | 3.355  | 5.041   |
| 9  | 0.883 | 1.383 | 1.833 | 1.973 | 2.150  | 2.262  | 2.398  | 2.821  | 3.250  | 4.781   |
| 10 | 0.879 | 1.372 | 1.812 | 1.948 | 2.120  | 2.228  | 2.359  | 2.764  | 3.169  | 4.587   |
| 11 | 0.876 | 1.363 | 1.796 | 1.928 | 2.096  | 2.201  | 2.328  | 2.718  | 3.106  | 4.437   |
| 12 | 0.873 | 1.356 | 1.782 | 1.912 | 2.076  | 2.179  | 2.303  | 2.681  | 3.055  | 4.318   |
| 13 | 0.870 | 1.350 | 1.771 | 1.899 | 2.060  | 2.160  | 2.282  | 2.650  | 3.012  | 4.221   |
| 14 | 0.868 | 1.345 | 1.761 | 1.887 | 2.046  | 2.145  | 2.264  | 2.624  | 2.977  | 4.140   |
| 15 | 0.866 | 1.341 | 1.753 | 1.878 | 2.034  | 2.131  | 2.249  | 2.602  | 2.947  | 4.073   |
| 16 | 0.865 | 1.337 | 1.746 | 1.869 | 2.024  | 2.120  | 2.235  | 2.583  | 2.921  | 4.015   |
| 17 | 0.863 | 1.333 | 1.740 | 1.862 | 2.015  | 2.110  | 2.224  | 2.567  | 2.898  | 3.965   |

| <b>df</b> | <b>0.2</b> | <b>0.1</b> | <b>0.05</b> | <b>0.04</b> | <b>0.03</b> | <b>0.025</b> | <b>0.02</b> | <b>0.01</b> | <b>0.005</b> | <b>0.0005</b> |
|-----------|------------|------------|-------------|-------------|-------------|--------------|-------------|-------------|--------------|---------------|
| 18        | 0.862      | 1.330      | 1.734       | 1.855       | 2.007       | 2.101        | 2.214       | 2.552       | 2.878        | 3.922         |
| 19        | 0.861      | 1.328      | 1.729       | 1.850       | 2.000       | 2.093        | 2.205       | 2.539       | 2.861        | 3.883         |
| 20        | 0.860      | 1.325      | 1.725       | 1.844       | 1.994       | 2.086        | 2.197       | 2.528       | 2.845        | 3.850         |
| 21        | 0.859      | 1.323      | 1.721       | 1.840       | 1.988       | 2.080        | 2.189       | 2.518       | 2.831        | 3.819         |
| 22        | 0.858      | 1.321      | 1.717       | 1.835       | 1.983       | 2.074        | 2.183       | 2.508       | 2.819        | 3.792         |
| 23        | 0.858      | 1.319      | 1.714       | 1.832       | 1.978       | 2.069        | 2.177       | 2.500       | 2.807        | 3.768         |
| 24        | 0.857      | 1.318      | 1.711       | 1.828       | 1.974       | 2.064        | 2.172       | 2.492       | 2.797        | 3.745         |
| 25        | 0.856      | 1.316      | 1.708       | 1.825       | 1.970       | 2.060        | 2.167       | 2.485       | 2.787        | 3.725         |
| 26        | 0.856      | 1.315      | 1.706       | 1.822       | 1.967       | 2.056        | 2.162       | 2.479       | 2.779        | 3.707         |
| 27        | 0.855      | 1.314      | 1.703       | 1.819       | 1.963       | 2.052        | 2.158       | 2.473       | 2.771        | 3.690         |
| 28        | 0.855      | 1.313      | 1.701       | 1.817       | 1.960       | 2.048        | 2.154       | 2.467       | 2.763        | 3.674         |
| 29        | 0.854      | 1.311      | 1.699       | 1.814       | 1.957       | 2.045        | 2.150       | 2.462       | 2.756        | 3.659         |
| 30        | 0.854      | 1.310      | 1.697       | 1.812       | 1.955       | 2.042        | 2.147       | 2.457       | 2.750        | 3.646         |
| 35        | 0.852      | 1.306      | 1.690       | 1.803       | 1.944       | 2.030        | 2.133       | 2.438       | 2.724        | 3.591         |
| 40        | 0.851      | 1.303      | 1.684       | 1.796       | 1.936       | 2.021        | 2.123       | 2.423       | 2.704        | 3.551         |
| 50        | 0.849      | 1.299      | 1.676       | 1.787       | 1.924       | 2.009        | 2.109       | 2.403       | 2.678        | 3.496         |
| 60        | 0.848      | 1.296      | 1.671       | 1.781       | 1.917       | 2.000        | 2.099       | 2.390       | 2.660        | 3.460         |
| 70        | 0.847      | 1.294      | 1.667       | 1.776       | 1.912       | 1.994        | 2.093       | 2.381       | 2.648        | 3.435         |
| 80        | 0.846      | 1.292      | 1.664       | 1.773       | 1.908       | 1.990        | 2.088       | 2.374       | 2.639        | 3.416         |

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|------------------|------------|------------|-------------|-------------|-------------|--------------|-------------|-------------|--------------|---------------|
| 90               | 0.846      | 1.291      | 1.662       | 1.770       | 1.905       | 1.987        | 2.084       | 2.368       | 2.632        | 3.402         |
| 100              | 0.845      | 1.290      | 1.660       | 1.768       | 1.902       | 1.984        | 2.081       | 2.364       | 2.626        | 3.390         |
| $\infty$         | 0.842      | 1.282      | 1.645       | 1.751       | 1.881       | 1.960        | 2.054       | 2.326       | 2.576        | 3.291         |
| Confidence Level | 60%        | 80%        | 90%         | 92%         | 94%         | 95%          | 96%         | 98%         | 99%          | 99.9%         |

Note:  $t(\infty)\alpha/2 = Z\alpha/2$  in our notation. For two-sided confidence intervals or two-tailed tests, use the column that matches your desired confidence level (which corresponds to  $\alpha/2$  upper tail probability).