

Statistical Tables

Statistical Laboratory

School of Mathematics
University of Manchester

Tables of : Inverse Standard Normal
Standard Normal
Student t
Chi-squared
Fisher F

**Percentage points z_q
of the Normal Distribution**

| q | z |
|-------|--------|
| 0.800 | 0.8416 |
| 0.900 | 1.2816 |
| 0.950 | 1.6449 |
| 0.975 | 1.9600 |
| 0.990 | 2.3263 |
| 0.995 | 2.5758 |

The percentage point z_q of the Standard Normal random variable Z is defined as

$$\Pr(Z \leq z_q) = q$$

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Standard Normal Tables

| z | <i>Distribution function</i> | | | | | | | | | |
|-----|------------------------------|------|------|------|------|------|------|------|------|------|
| | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 0.0 | 0.5000 | 5040 | 5080 | 5120 | 5160 | 5199 | 5239 | 5279 | 5319 | 5359 |
| 0.1 | 0.5398 | 5438 | 5478 | 5517 | 5557 | 5596 | 5636 | 5675 | 5714 | 5763 |
| 0.2 | 0.5793 | 5832 | 5871 | 5910 | 5948 | 5987 | 6026 | 6064 | 6103 | 6141 |
| 0.3 | 0.6179 | 6217 | 6255 | 6293 | 6331 | 6368 | 6406 | 6443 | 6480 | 6517 |
| 0.4 | 0.6554 | 6591 | 6628 | 6664 | 6700 | 6736 | 6772 | 6808 | 6844 | 6879 |
| 0.5 | 0.6915 | 6950 | 6985 | 7019 | 7054 | 7088 | 7123 | 7157 | 7190 | 7224 |
| 0.6 | 0.7257 | 7291 | 7324 | 7357 | 7389 | 7422 | 7454 | 7486 | 7517 | 7549 |
| 0.7 | 0.7580 | 7611 | 7642 | 7673 | 7704 | 7734 | 7764 | 7794 | 7823 | 7852 |
| 0.8 | 0.7881 | 7910 | 7939 | 7967 | 7995 | 8023 | 8051 | 8078 | 8106 | 8133 |
| 0.9 | 0.8159 | 8186 | 8212 | 8238 | 8264 | 8289 | 8315 | 8340 | 8365 | 8389 |
| 1.0 | 0.8413 | 8438 | 8461 | 8485 | 8508 | 8531 | 8554 | 8577 | 8599 | 8621 |
| 1.1 | 0.8643 | 8665 | 8686 | 8708 | 8729 | 8749 | 8770 | 8790 | 8810 | 8830 |
| 1.2 | 0.8849 | 8869 | 8888 | 8907 | 8925 | 8944 | 8962 | 8980 | 8997 | 9015 |
| 1.3 | 0.9032 | 9049 | 9066 | 9082 | 9099 | 9115 | 9131 | 9147 | 9162 | 9177 |
| 1.4 | 0.9192 | 9207 | 9222 | 9236 | 9251 | 9265 | 9279 | 9292 | 9306 | 9319 |
| 1.5 | 0.9332 | 9345 | 9357 | 9370 | 9382 | 9394 | 9406 | 9418 | 9429 | 9441 |
| 1.6 | 0.9452 | 9463 | 9474 | 9484 | 9495 | 9505 | 9515 | 9525 | 9535 | 9545 |
| 1.7 | 0.9554 | 9564 | 9573 | 9582 | 9591 | 9599 | 9608 | 9616 | 9625 | 9633 |
| 1.8 | 0.9641 | 9649 | 9656 | 9664 | 9671 | 9678 | 9686 | 9693 | 9699 | 9706 |
| 1.9 | 0.9713 | 9719 | 9726 | 9732 | 9738 | 9744 | 9750 | 9756 | 9761 | 9767 |
| 2.0 | 0.9772 | 9778 | 9783 | 9788 | 9793 | 9798 | 9803 | 9808 | 9812 | 9817 |
| 2.1 | 0.9821 | 9826 | 9830 | 9834 | 9838 | 9842 | 9846 | 9850 | 9854 | 9857 |
| 2.2 | 0.9861 | 9864 | 9868 | 9871 | 9875 | 9878 | 9881 | 9884 | 9887 | 9890 |
| 2.3 | 0.9893 | 9896 | 9898 | 9901 | 9904 | 9906 | 9909 | 9911 | 9913 | 9916 |
| 2.4 | 0.9918 | 9920 | 9922 | 9925 | 9927 | 9929 | 9931 | 9932 | 9934 | 9936 |
| 2.5 | 0.9938 | 9940 | 9941 | 9943 | 9945 | 9946 | 9948 | 9949 | 9951 | 9952 |
| 2.6 | 0.9953 | 9955 | 9956 | 9957 | 9959 | 9960 | 9961 | 9962 | 9963 | 9964 |
| 2.7 | 0.9965 | 9966 | 9967 | 9968 | 9969 | 9970 | 9971 | 9972 | 9973 | 9974 |
| 2.8 | 0.9974 | 9975 | 9976 | 9977 | 9977 | 9978 | 9979 | 9980 | 9980 | 9981 |
| 2.9 | 0.9981 | 9982 | 9983 | 9983 | 9984 | 9984 | 9985 | 9985 | 9986 | 9986 |
| 3.0 | 0.9987 | 9987 | 9987 | 9988 | 9988 | 9989 | 9989 | 9989 | 9990 | 9990 |
| 3.1 | 0.9990 | 9991 | 9991 | 9991 | 9992 | 9992 | 9992 | 9992 | 9993 | 9993 |
| 3.2 | 0.9993 | 9993 | 9994 | 9994 | 9994 | 9994 | 9994 | 9995 | 9995 | 9995 |
| 3.3 | 0.9995 | 9995 | 9995 | 9996 | 9996 | 9996 | 9996 | 9996 | 9996 | 9997 |
| 3.4 | 0.9997 | 9997 | 9997 | 9997 | 9997 | 9997 | 9997 | 9997 | 9997 | 9998 |
| 3.5 | 0.9998 | 9998 | 9998 | 9998 | 9998 | 9998 | 9998 | 9998 | 9998 | 9998 |

Percentage points $t_{\nu,q}$
of the t -distribution

| df ν | q -value | | | | df ν | q -value | | | |
|---------------|------------|---------|---------|---------|---------------|------------|--------|--------|--------|
| | 0.95 | 0.975 | 0.99 | 0.995 | | 0.95 | 0.975 | 0.99 | 0.995 |
| 1 | 6.3138 | 12.7062 | 31.8205 | 63.6567 | 31 | 1.6955 | 2.0395 | 2.4528 | 2.7440 |
| 2 | 2.9200 | 4.3027 | 6.9646 | 9.9248 | 32 | 1.6939 | 2.0369 | 2.4487 | 2.7385 |
| 3 | 2.3534 | 3.1824 | 4.5407 | 5.8409 | 33 | 1.6924 | 2.0345 | 2.4448 | 2.7333 |
| 4 | 2.1318 | 2.7764 | 3.7469 | 4.6041 | 34 | 1.6909 | 2.0322 | 2.4411 | 2.7284 |
| 5 | 2.0150 | 2.5706 | 3.3649 | 4.0321 | 35 | 1.6896 | 2.0301 | 2.4377 | 2.7238 |
| 6 | 1.9432 | 2.4469 | 3.1427 | 3.7074 | 36 | 1.6883 | 2.0281 | 2.4345 | 2.7195 |
| 7 | 1.8946 | 2.3646 | 2.9980 | 3.4995 | 37 | 1.6871 | 2.0262 | 2.4314 | 2.7154 |
| 8 | 1.8595 | 2.3060 | 2.8965 | 3.3554 | 38 | 1.6860 | 2.0244 | 2.4286 | 2.7116 |
| 9 | 1.8331 | 2.2622 | 2.8214 | 3.2498 | 39 | 1.6849 | 2.0227 | 2.4258 | 2.7079 |
| 10 | 1.8125 | 2.2281 | 2.7638 | 3.1693 | 40 | 1.6839 | 2.0211 | 2.4233 | 2.7045 |
| 11 | 1.7959 | 2.2010 | 2.7181 | 3.1058 | 42 | 1.6820 | 2.0181 | 2.4185 | 2.6981 |
| 12 | 1.7823 | 2.1788 | 2.6810 | 3.0545 | 44 | 1.6802 | 2.0154 | 2.4141 | 2.6923 |
| 13 | 1.7709 | 2.1604 | 2.6503 | 3.0123 | 46 | 1.6787 | 2.0129 | 2.4102 | 2.6870 |
| 14 | 1.7613 | 2.1448 | 2.6245 | 2.9768 | 48 | 1.6772 | 2.0106 | 2.4066 | 2.6822 |
| 15 | 1.7531 | 2.1314 | 2.6025 | 2.9467 | 50 | 1.6759 | 2.0086 | 2.4033 | 2.6778 |
| 16 | 1.7459 | 2.1199 | 2.5835 | 2.9208 | 55 | 1.6730 | 2.0040 | 2.3961 | 2.6682 |
| 17 | 1.7396 | 2.1098 | 2.5669 | 2.8982 | 60 | 1.6706 | 2.0003 | 2.3901 | 2.6603 |
| 18 | 1.7341 | 2.1009 | 2.5524 | 2.8784 | 65 | 1.6686 | 1.9971 | 2.3851 | 2.6536 |
| 19 | 1.7291 | 2.0930 | 2.5395 | 2.8609 | 70 | 1.6669 | 1.9944 | 2.3808 | 2.6479 |
| 20 | 1.7247 | 2.0860 | 2.5280 | 2.8453 | 75 | 1.6654 | 1.9921 | 2.3771 | 2.6430 |
| 21 | 1.7207 | 2.0796 | 2.5176 | 2.8314 | 80 | 1.6641 | 1.9901 | 2.3739 | 2.6387 |
| 22 | 1.7171 | 2.0739 | 2.5083 | 2.8188 | 85 | 1.6630 | 1.9883 | 2.3710 | 2.6349 |
| 23 | 1.7139 | 2.0687 | 2.4999 | 2.8073 | 90 | 1.6620 | 1.9867 | 2.3685 | 2.6316 |
| 24 | 1.7109 | 2.0639 | 2.4922 | 2.7969 | 95 | 1.6611 | 1.9853 | 2.3662 | 2.6286 |
| 25 | 1.7081 | 2.0595 | 2.4851 | 2.7874 | 100 | 1.6602 | 1.9840 | 2.3642 | 2.6259 |
| 26 | 1.7056 | 2.0555 | 2.4786 | 2.7787 | 125 | 1.6571 | 1.9791 | 2.3565 | 2.6157 |
| 27 | 1.7033 | 2.0518 | 2.4727 | 2.7707 | 150 | 1.6551 | 1.9759 | 2.3515 | 2.6090 |
| 28 | 1.7011 | 2.0484 | 2.4671 | 2.7633 | 175 | 1.6536 | 1.9736 | 2.3478 | 2.6042 |
| 29 | 1.6991 | 2.0452 | 2.4620 | 2.7564 | 200 | 1.6525 | 1.9719 | 2.3451 | 2.6006 |
| 30 | 1.6973 | 2.0423 | 2.4573 | 2.7500 | ∞ | 1.6449 | 1.9600 | 2.3263 | 2.5758 |

The percentage point $t_{\nu,q}$ of the t -distributed random variable t_ν is defined as

$$\Pr(t_\nu \leq t_{\nu,q}) = q$$

Percentage points $\chi_{\nu,q}^2$ of the Chi-squared distribution

| df ν | q -value | | | | | | | | | | |
|-------------|------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| | 0.005 | 0.01 | 0.025 | .05 | 0.10 | .50 | .90 | 0.95 | 0.975 | 0.99 | 0.995 |
| 1 | .00439 | .00861 | .01732 | .03454 | .06709 | .455 | 2.706 | 3.841 | 5.024 | 6.635 | 7.879 |
| 2 | .0100 | .0200 | .0400 | .0778 | .1539 | 1.386 | 4.605 | 5.991 | 7.378 | 9.210 | 10.597 |
| 3 | .0177 | .0354 | .0708 | .1378 | .2709 | 2.366 | 6.251 | 7.815 | 9.348 | 11.345 | 12.838 |
| 4 | .207 | .297 | .484 | .711 | 1.064 | 3.357 | 7.779 | 9.488 | 11.143 | 13.277 | 14.860 |
| 5 | .412 | .554 | .831 | 1.145 | 1.610 | 4.351 | 9.236 | 10.070 | 12.832 | 15.086 | 16.750 |
| 6 | .676 | .872 | 1.237 | 1.635 | 2.204 | 5.348 | 10.645 | 12.592 | 14.449 | 16.812 | 18.548 |
| 7 | .989 | 1.239 | 1.690 | 2.167 | 2.833 | 6.346 | 12.017 | 14.067 | 16.013 | 18.475 | 20.278 |
| 8 | 1.344 | 1.646 | 2.180 | 2.733 | 3.490 | 7.344 | 13.362 | 15.507 | 17.535 | 20.090 | 21.955 |
| 9 | 1.735 | 2.088 | 2.700 | 3.325 | 4.168 | 8.343 | 14.684 | 16.919 | 19.023 | 21.666 | 23.589 |
| 10 | 2.156 | 2.558 | 3.247 | 3.940 | 4.865 | 9.342 | 15.987 | 18.307 | 20.483 | 23.209 | 25.188 |
| 11 | 2.603 | 3.053 | 3.816 | 4.575 | 5.578 | 10.341 | 17.275 | 19.675 | 21.920 | 24.725 | 26.757 |
| 12 | 3.074 | 3.571 | 4.404 | 5.226 | 6.304 | 11.340 | 18.549 | 21.026 | 23.337 | 26.217 | 28.300 |
| 13 | 3.565 | 4.107 | 5.009 | 5.892 | 7.042 | 12.340 | 19.812 | 22.362 | 24.736 | 27.688 | 29.819 |
| 14 | 4.075 | 4.660 | 5.629 | 6.571 | 7.790 | 13.339 | 21.064 | 23.685 | 26.119 | 29.141 | 31.319 |
| 15 | 4.601 | 5.229 | 6.262 | 7.261 | 8.547 | 14.339 | 22.307 | 24.996 | 27.488 | 30.578 | 32.801 |
| 16 | 5.142 | 5.812 | 6.908 | 7.962 | 9.312 | 15.338 | 23.542 | 26.296 | 28.845 | 32.000 | 34.267 |
| 17 | 5.697 | 6.408 | 7.564 | 8.672 | 10.085 | 16.338 | 24.769 | 27.587 | 30.191 | 33.409 | 35.718 |
| 18 | 6.265 | 7.015 | 8.231 | 9.390 | 10.865 | 17.338 | 25.989 | 28.869 | 31.526 | 34.805 | 37.156 |
| 19 | 6.844 | 7.638 | 8.907 | 10.117 | 11.651 | 18.338 | 27.204 | 30.144 | 32.852 | 36.191 | 38.582 |
| 20 | 7.434 | 8.260 | 9.591 | 10.851 | 12.443 | 19.337 | 28.412 | 31.410 | 34.170 | 37.566 | 39.997 |
| 21 | 8.034 | 8.897 | 10.283 | 11.591 | 13.240 | 20.337 | 29.615 | 32.671 | 35.479 | 38.932 | 41.401 |
| 22 | 8.643 | 9.542 | 10.982 | 12.338 | 14.041 | 21.337 | 30.813 | 33.924 | 36.781 | 40.289 | 42.796 |
| 23 | 9.260 | 10.196 | 11.688 | 13.091 | 14.848 | 22.337 | 32.007 | 35.172 | 38.076 | 41.638 | 44.181 |
| 24 | 9.886 | 10.856 | 12.401 | 13.848 | 15.659 | 23.337 | 33.196 | 36.415 | 39.364 | 42.980 | 45.558 |
| 25 | 10.520 | 11.524 | 13.120 | 14.611 | 16.473 | 24.337 | 34.382 | 37.652 | 40.646 | 44.314 | 46.928 |
| 26 | 11.160 | 12.198 | 13.844 | 15.379 | 17.292 | 25.336 | 35.563 | 38.885 | 41.943 | 45.642 | 48.290 |
| 27 | 11.808 | 12.879 | 14.573 | 16.151 | 18.114 | 26.336 | 36.741 | 40.113 | 43.194 | 46.963 | 49.645 |
| 28 | 12.461 | 13.565 | 15.308 | 16.928 | 18.939 | 27.336 | 37.916 | 41.337 | 44.461 | 48.278 | 50.993 |
| 29 | 13.121 | 14.256 | 16.047 | 17.708 | 19.768 | 28.336 | 39.087 | 42.557 | 45.722 | 49.588 | 52.336 |
| 30 | 13.787 | 14.953 | 16.791 | 18.493 | 20.599 | 29.336 | 40.256 | 43.733 | 46.979 | 50.892 | 53.672 |
| 31 | 14.458 | 15.656 | 17.539 | 19.281 | 21.434 | 30.436 | 41.422 | 44.985 | 48.232 | 52.191 | 55.003 |
| 32 | 15.134 | 16.362 | 18.291 | 20.072 | 22.271 | 31.336 | 42.585 | 46.194 | 49.480 | 53.486 | 56.328 |
| 33 | 15.815 | 17.074 | 19.047 | 20.867 | 23.110 | 32.336 | 43.745 | 47.400 | 50.725 | 54.776 | 57.649 |
| 34 | 16.501 | 17.779 | 19.806 | 21.664 | 23.952 | 33.336 | 44.903 | 48.602 | 51.966 | 56.061 | 58.964 |
| 35 | 17.192 | 18.509 | 20.569 | 22.465 | 24.797 | 34.336 | 46.059 | 49.802 | 53.203 | 57.342 | 60.275 |
| 36 | 17.887 | 19.233 | 21.336 | 23.269 | 25.643 | 35.336 | 47.212 | 50.999 | 54.437 | 58.619 | 61.581 |
| 37 | 18.586 | 19.960 | 22.106 | 24.075 | 26.492 | 36.336 | 48.363 | 52.192 | 55.668 | 59.893 | 62.883 |
| 38 | 19.289 | 20.691 | 22.879 | 24.884 | 27.343 | 37.335 | 49.513 | 53.384 | 56.896 | 61.162 | 64.181 |
| 39 | 19.996 | 21.462 | 23.654 | 25.695 | 28.196 | 38.335 | 50.660 | 54.572 | 58.120 | 62.428 | 65.476 |
| 40 | 20.707 | 22.164 | 24.433 | 26.509 | 29.051 | 39.335 | 51.805 | 55.759 | 59.342 | 63.691 | 66.766 |
| 42 | 22.139 | 23.650 | 25.999 | 28.144 | 30.765 | 41.335 | 54.090 | 58.124 | 61.777 | 66.206 | 69.336 |
| 44 | 23.584 | 25.148 | 27.575 | 29.788 | 32.487 | 43.335 | 56.369 | 60.641 | 64.201 | 68.710 | 71.893 |
| 46 | 25.041 | 26.657 | 29.160 | 31.439 | 34.215 | 45.335 | 58.641 | 62.830 | 66.617 | 71.201 | 74.437 |
| 48 | 26.511 | 28.177 | 30.755 | 33.098 | 35.949 | 47.335 | 60.907 | 65.171 | 69.023 | 73.683 | 76.969 |
| 50 | 27.991 | 29.707 | 32.357 | 34.764 | 37.689 | 49.335 | 63.167 | 67.505 | 71.420 | 76.154 | 79.490 |
| 55 | 31.735 | 33.571 | 36.398 | 38.958 | 42.060 | 54.335 | 68.796 | 72.312 | 77.381 | 82.292 | 85.749 |
| 60 | 35.535 | 37.485 | 40.482 | 43.188 | 46.459 | 59.335 | 74.397 | 79.082 | 82.298 | 88.379 | 91.952 |
| 65 | 39.383 | 41.444 | 44.603 | 47.450 | 50.883 | 64.334 | 79.973 | 84.821 | 89.177 | 94.422 | 98.105 |
| 70 | 43.275 | 45.442 | 48.758 | 51.739 | 55.329 | 69.334 | 85.527 | 90.531 | 95.023 | 100.43 | 104.22 |
| 75 | 47.206 | 49.475 | 52.942 | 56.054 | 59.795 | 74.334 | 91.062 | 96.217 | 100.84 | 106.39 | 110.29 |
| 80 | 51.172 | 53.540 | 57.153 | 60.392 | 64.278 | 79.334 | 96.578 | 101.88 | 106.63 | 112.33 | 116.32 |
| 85 | 55.170 | 57.634 | 61.389 | 64.749 | 68.777 | 84.334 | 102.08 | 107.52 | 112.39 | 118.24 | 122.33 |
| 90 | 59.196 | 61.754 | 65.647 | 69.126 | 73.291 | 89.334 | 107.57 | 113.15 | 118.14 | 124.12 | 128.30 |
| 95 | 63.250 | 65.898 | 69.925 | 73.520 | 77.818 | 94.334 | 113.04 | 118.75 | 123.86 | 129.97 | 134.25 |
| 100 | 67.328 | 70.065 | 74.222 | 77.930 | 82.358 | 99.334 | 118.50 | 124.34 | 129.56 | 135.81 | 140.17 |

The percentage point $\chi_{\nu,q}^2$ of the chi-squared distributed random variable χ_{ν}^2 is defined as

$$Pr(\chi_{\nu}^2 \leq \chi_{\nu,q}^2) = q$$

For $\nu > 100$, $\sqrt{2\chi_{\nu}^2}$ is approximately Normally distributed with mean $\sqrt{2\nu - 1}$ and unit variance.

Percentage points of the F distribution $q = 0.95$

| ν_2 | Numerator degrees of freedom ν_1 | | | | | | | | | | ∞ | | | | | | | | |
|----------|--------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|----------|-------|-------|-------|-------|-------|-------|-------|----------|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 12 | 15 | 20 | 24 | 30 | 40 | 60 | 120 | ∞ |
| 1 | 161.4 | 199.5 | 215.7 | 224.6 | 230.2 | 234.0 | 236.8 | 238.9 | 240.5 | 241.9 | 243.9 | 245.9 | 248.0 | 249.1 | 250.1 | 251.1 | 252.2 | 253.3 | 254.3 |
| 2 | 18.51 | 19.00 | 19.16 | 19.25 | 19.30 | 19.33 | 19.35 | 19.37 | 19.38 | 19.40 | 19.41 | 19.43 | 19.45 | 19.45 | 19.46 | 19.47 | 19.48 | 19.49 | 19.50 |
| 3 | 10.13 | 9.55 | 9.28 | 9.12 | 9.01 | 8.94 | 8.89 | 8.85 | 8.81 | 8.79 | 8.74 | 8.70 | 8.66 | 8.64 | 8.62 | 8.59 | 8.54 | 8.55 | 8.53 |
| 4 | 7.71 | 6.94 | 6.59 | 6.39 | 6.26 | 6.16 | 6.09 | 6.04 | 6.00 | 5.96 | 5.91 | 5.86 | 5.80 | 5.77 | 5.75 | 5.72 | 5.69 | 5.66 | 5.63 |
| 5 | 6.61 | 5.79 | 5.41 | 5.19 | 5.05 | 4.95 | 4.88 | 4.82 | 4.77 | 4.74 | 4.68 | 4.62 | 4.56 | 4.53 | 4.50 | 4.46 | 4.43 | 4.40 | 4.36 |
| 6 | 5.99 | 5.14 | 4.76 | 4.53 | 4.39 | 4.28 | 4.21 | 4.15 | 4.10 | 4.06 | 4.00 | 3.94 | 3.87 | 3.84 | 3.81 | 3.77 | 3.74 | 3.70 | 3.67 |
| 7 | 5.59 | 4.74 | 4.35 | 4.12 | 3.97 | 3.87 | 3.79 | 3.73 | 3.68 | 3.64 | 3.57 | 3.51 | 3.44 | 3.41 | 3.38 | 3.34 | 3.30 | 3.27 | 3.23 |
| 8 | 5.32 | 4.46 | 4.07 | 3.84 | 3.69 | 3.58 | 3.50 | 3.44 | 3.39 | 3.35 | 3.28 | 3.22 | 3.15 | 3.12 | 3.08 | 3.04 | 3.01 | 2.97 | 2.93 |
| 9 | 5.12 | 4.26 | 3.86 | 3.63 | 3.48 | 3.37 | 3.29 | 3.23 | 3.18 | 3.14 | 3.07 | 3.01 | 2.94 | 2.90 | 2.86 | 2.83 | 2.79 | 2.75 | 2.71 |
| 10 | 4.96 | 4.10 | 3.71 | 3.48 | 3.33 | 3.22 | 3.14 | 3.07 | 3.02 | 2.98 | 2.91 | 2.85 | 2.77 | 2.74 | 2.70 | 2.66 | 2.62 | 2.58 | 2.54 |
| 11 | 4.84 | 3.98 | 3.59 | 3.36 | 3.20 | 3.09 | 3.01 | 2.95 | 2.90 | 2.85 | 2.79 | 2.72 | 2.65 | 2.61 | 2.57 | 2.53 | 2.49 | 2.45 | 2.40 |
| 12 | 4.75 | 3.89 | 3.49 | 3.26 | 3.11 | 3.00 | 2.91 | 2.85 | 2.80 | 2.75 | 2.69 | 2.62 | 2.54 | 2.51 | 2.47 | 2.43 | 2.38 | 2.34 | 2.30 |
| 13 | 4.67 | 3.81 | 3.41 | 3.18 | 3.03 | 2.92 | 2.83 | 2.77 | 2.71 | 2.67 | 2.60 | 2.53 | 2.46 | 2.42 | 2.38 | 2.34 | 2.30 | 2.25 | 2.21 |
| 14 | 4.60 | 3.74 | 3.34 | 3.11 | 2.96 | 2.85 | 2.76 | 2.70 | 2.65 | 2.60 | 2.53 | 2.46 | 2.39 | 2.35 | 2.31 | 2.27 | 2.22 | 2.18 | 2.13 |
| 15 | 4.54 | 3.68 | 3.29 | 3.06 | 2.90 | 2.79 | 2.71 | 2.64 | 2.59 | 2.54 | 2.48 | 2.40 | 2.33 | 2.29 | 2.25 | 2.20 | 2.16 | 2.11 | 2.07 |
| 16 | 4.49 | 3.63 | 3.24 | 3.01 | 2.85 | 2.74 | 2.66 | 2.59 | 2.54 | 2.49 | 2.42 | 2.35 | 2.28 | 2.24 | 2.19 | 2.15 | 2.11 | 2.06 | 2.01 |
| 17 | 4.45 | 3.50 | 3.20 | 2.96 | 2.81 | 2.70 | 2.61 | 2.55 | 2.49 | 2.45 | 2.38 | 2.31 | 2.23 | 2.19 | 2.15 | 2.10 | 2.06 | 2.01 | 1.96 |
| 18 | 4.41 | 3.55 | 3.16 | 2.93 | 2.77 | 2.66 | 2.58 | 2.51 | 2.46 | 2.41 | 2.34 | 2.27 | 2.19 | 2.15 | 2.11 | 2.06 | 2.02 | 1.97 | 1.92 |
| 19 | 4.38 | 3.52 | 3.13 | 2.90 | 2.74 | 2.63 | 2.54 | 2.48 | 2.42 | 2.38 | 2.31 | 2.23 | 2.16 | 2.11 | 2.07 | 2.03 | 1.98 | 1.93 | 1.88 |
| 20 | 4.35 | 3.49 | 3.10 | 2.87 | 2.71 | 2.60 | 2.51 | 2.45 | 2.39 | 2.35 | 2.28 | 2.20 | 2.12 | 2.08 | 2.04 | 1.99 | 1.95 | 1.90 | 1.84 |
| 21 | 4.32 | 3.47 | 3.07 | 2.84 | 2.68 | 2.57 | 2.49 | 2.42 | 2.37 | 2.32 | 2.25 | 2.18 | 2.10 | 2.05 | 2.01 | 1.96 | 1.92 | 1.87 | 1.81 |
| 22 | 4.30 | 3.44 | 3.05 | 2.82 | 2.66 | 2.55 | 2.46 | 2.40 | 2.34 | 2.30 | 2.23 | 2.15 | 2.07 | 2.03 | 1.98 | 1.94 | 1.89 | 1.84 | 1.78 |
| 23 | 4.28 | 3.42 | 3.03 | 2.80 | 2.64 | 2.53 | 2.44 | 2.37 | 2.32 | 2.27 | 2.20 | 2.13 | 2.05 | 2.01 | 1.96 | 1.91 | 1.86 | 1.81 | 1.76 |
| 24 | 4.26 | 3.40 | 3.01 | 2.78 | 2.62 | 2.51 | 2.42 | 2.36 | 2.30 | 2.25 | 2.18 | 2.11 | 2.03 | 1.98 | 1.94 | 1.89 | 1.84 | 1.79 | 1.73 |
| 25 | 4.24 | 3.39 | 2.99 | 2.76 | 2.60 | 2.49 | 2.40 | 2.34 | 2.28 | 2.24 | 2.16 | 2.09 | 2.01 | 1.96 | 1.92 | 1.87 | 1.82 | 1.77 | 1.71 |
| 26 | 4.23 | 3.37 | 2.98 | 2.74 | 2.59 | 2.47 | 2.39 | 2.32 | 2.27 | 2.22 | 2.15 | 2.07 | 1.99 | 1.95 | 1.90 | 1.85 | 1.80 | 1.75 | 1.69 |
| 27 | 4.21 | 3.35 | 2.96 | 2.73 | 2.57 | 2.46 | 2.37 | 2.31 | 2.25 | 2.20 | 2.13 | 2.06 | 1.97 | 1.93 | 1.88 | 1.84 | 1.79 | 1.73 | 1.67 |
| 28 | 4.20 | 3.34 | 2.95 | 2.71 | 2.56 | 2.45 | 2.36 | 2.29 | 2.24 | 2.19 | 2.12 | 2.04 | 1.96 | 1.91 | 1.87 | 1.82 | 1.77 | 1.71 | 1.65 |
| 29 | 4.18 | 3.33 | 2.93 | 2.70 | 2.55 | 2.43 | 2.35 | 2.28 | 2.22 | 2.18 | 2.10 | 2.03 | 1.94 | 1.90 | 1.85 | 1.81 | 1.75 | 1.70 | 1.64 |
| 30 | 4.17 | 3.32 | 2.92 | 2.69 | 2.53 | 2.42 | 2.33 | 2.27 | 2.21 | 2.16 | 2.09 | 2.01 | 1.93 | 1.89 | 1.84 | 1.79 | 1.74 | 1.68 | 1.62 |
| 40 | 4.08 | 3.23 | 2.84 | 2.61 | 2.45 | 2.34 | 2.25 | 2.18 | 2.12 | 2.08 | 2.00 | 1.92 | 1.84 | 1.79 | 1.74 | 1.69 | 1.64 | 1.58 | 1.51 |
| 60 | 4.00 | 3.15 | 2.76 | 2.53 | 2.37 | 2.25 | 2.17 | 2.10 | 2.04 | 1.99 | 1.92 | 1.84 | 1.75 | 1.70 | 1.65 | 1.59 | 1.53 | 1.47 | 1.39 |
| 120 | 3.92 | 3.07 | 2.68 | 2.45 | 2.29 | 2.17 | 2.09 | 2.02 | 1.96 | 1.91 | 1.83 | 1.75 | 1.66 | 1.61 | 1.55 | 1.50 | 1.43 | 1.35 | 1.25 |
| ∞ | 3.84 | 3.00 | 2.60 | 2.37 | 2.21 | 2.10 | 2.01 | 1.94 | 1.86 | 1.83 | 1.75 | 1.67 | 1.57 | 1.52 | 1.46 | 1.39 | 1.32 | 1.22 | 1.00 |

The percentage point $F_{\nu_1, \nu_2; q}$ of the F distributed random variable F_{ν_1, ν_2} with ν_1 and ν_2 degrees of freedom is defined as $P_T(F_{\nu_1, \nu_2} \leq F_{\nu_1, \nu_2; q}) = q$.

Percentage points of the F distribution $q = 0.975$

| ν_2 | Numerator degrees of freedom ν_1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|----------|--------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|----------|--|--|--|--|--|--|--|--|--|--|--|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 12 | 15 | 20 | 24 | 30 | 40 | 60 | 120 | ∞ | | | | | | | | | | | |
| 1 | 647.8 | 799.5 | 864.2 | 899.6 | 921.8 | 937.1 | 948.2 | 956.7 | 963.3 | 968.6 | 976.7 | 984.9 | 993.1 | 997.2 | 1001 | 1006 | 1010 | 1014 | 1018 | | | | | | | | | | | |
| 2 | 38.51 | 39.00 | 39.17 | 39.25 | 39.30 | 39.33 | 39.36 | 39.37 | 39.39 | 39.40 | 39.41 | 39.43 | 39.45 | 39.46 | 39.46 | 39.47 | 39.48 | 39.49 | 39.50 | | | | | | | | | | | |
| 3 | 17.44 | 16.04 | 15.44 | 15.10 | 14.88 | 14.73 | 14.62 | 14.54 | 14.47 | 14.42 | 14.34 | 14.25 | 14.17 | 14.12 | 14.08 | 14.04 | 13.99 | 13.95 | 13.90 | | | | | | | | | | | |
| 4 | 12.22 | 10.65 | 9.98 | 9.60 | 9.36 | 9.20 | 9.07 | 8.98 | 8.90 | 8.84 | 8.75 | 8.66 | 8.56 | 8.51 | 8.46 | 8.41 | 8.36 | 8.31 | 8.26 | | | | | | | | | | | |
| 5 | 10.01 | 8.43 | 7.76 | 7.39 | 7.15 | 6.98 | 6.85 | 6.76 | 6.68 | 6.62 | 6.52 | 6.43 | 6.33 | 6.28 | 6.23 | 6.18 | 6.12 | 6.07 | 6.02 | | | | | | | | | | | |
| 6 | 8.81 | 7.26 | 6.60 | 6.23 | 5.99 | 5.82 | 5.70 | 5.60 | 5.52 | 5.46 | 5.37 | 5.27 | 5.17 | 5.12 | 5.07 | 5.01 | 4.96 | 4.90 | 4.85 | | | | | | | | | | | |
| 7 | 8.07 | 6.54 | 5.89 | 5.52 | 5.29 | 5.12 | 4.99 | 4.90 | 4.82 | 4.76 | 4.67 | 4.57 | 4.47 | 4.42 | 4.36 | 4.31 | 4.25 | 4.20 | 4.14 | | | | | | | | | | | |
| 8 | 7.57 | 6.06 | 5.42 | 5.05 | 4.82 | 4.65 | 4.53 | 4.43 | 4.36 | 4.30 | 4.20 | 4.10 | 4.00 | 3.95 | 3.89 | 3.84 | 3.78 | 3.73 | 3.67 | | | | | | | | | | | |
| 9 | 7.21 | 5.71 | 5.08 | 4.72 | 4.48 | 4.32 | 4.20 | 4.10 | 4.03 | 3.96 | 3.87 | 3.77 | 3.67 | 3.61 | 3.56 | 3.51 | 3.45 | 3.39 | 3.33 | | | | | | | | | | | |
| 10 | 6.94 | 5.46 | 4.83 | 4.47 | 4.24 | 4.07 | 3.95 | 3.85 | 3.78 | 3.72 | 3.62 | 3.52 | 3.42 | 3.37 | 3.31 | 3.26 | 3.20 | 3.14 | 3.08 | | | | | | | | | | | |
| 11 | 6.72 | 5.26 | 4.63 | 4.28 | 4.04 | 3.88 | 3.76 | 3.66 | 3.59 | 3.53 | 3.43 | 3.33 | 3.23 | 3.17 | 3.12 | 3.06 | 3.00 | 2.94 | 2.88 | | | | | | | | | | | |
| 12 | 6.55 | 5.10 | 4.47 | 4.12 | 3.89 | 3.73 | 3.61 | 3.51 | 3.44 | 3.27 | 3.28 | 3.18 | 3.07 | 3.02 | 2.96 | 2.91 | 2.85 | 2.79 | 2.72 | | | | | | | | | | | |
| 13 | 6.41 | 4.97 | 4.35 | 4.00 | 3.77 | 3.60 | 3.48 | 3.39 | 3.31 | 3.25 | 3.15 | 3.05 | 2.95 | 2.89 | 2.84 | 2.78 | 2.72 | 2.66 | 2.60 | | | | | | | | | | | |
| 14 | 6.30 | 4.86 | 4.24 | 3.89 | 3.66 | 3.50 | 3.38 | 3.29 | 3.21 | 3.15 | 3.05 | 2.95 | 2.84 | 2.79 | 2.73 | 2.67 | 2.61 | 2.55 | 2.49 | | | | | | | | | | | |
| 15 | 6.20 | 4.77 | 4.15 | 3.80 | 3.58 | 3.41 | 3.29 | 3.20 | 3.12 | 3.06 | 2.96 | 2.86 | 2.79 | 2.70 | 2.64 | 2.59 | 2.52 | 2.46 | 2.40 | | | | | | | | | | | |
| 16 | 6.12 | 4.69 | 4.08 | 3.73 | 3.50 | 3.34 | 3.22 | 3.12 | 3.05 | 2.99 | 2.89 | 2.79 | 2.68 | 2.63 | 2.57 | 2.51 | 2.45 | 2.38 | 2.32 | | | | | | | | | | | |
| 17 | 6.04 | 4.62 | 4.01 | 3.66 | 3.44 | 3.28 | 3.16 | 3.06 | 2.98 | 2.92 | 2.82 | 2.72 | 2.62 | 2.56 | 2.50 | 2.44 | 2.38 | 2.32 | 2.25 | | | | | | | | | | | |
| 18 | 5.98 | 4.56 | 3.95 | 3.61 | 3.38 | 3.22 | 3.10 | 3.01 | 2.93 | 2.87 | 2.77 | 2.67 | 2.56 | 2.50 | 2.44 | 2.38 | 2.32 | 2.26 | 2.19 | | | | | | | | | | | |
| 19 | 5.92 | 4.51 | 3.90 | 3.56 | 3.33 | 3.17 | 3.05 | 2.96 | 2.88 | 2.82 | 2.72 | 2.62 | 2.51 | 2.45 | 2.39 | 2.33 | 2.27 | 2.20 | 2.13 | | | | | | | | | | | |
| 20 | 5.87 | 4.46 | 3.86 | 3.51 | 3.29 | 3.13 | 3.01 | 2.91 | 2.84 | 2.77 | 2.68 | 2.57 | 2.46 | 2.41 | 2.35 | 2.29 | 2.22 | 2.16 | 2.09 | | | | | | | | | | | |
| 21 | 5.83 | 4.42 | 3.82 | 3.48 | 3.25 | 3.09 | 2.97 | 2.87 | 2.80 | 2.73 | 2.64 | 2.53 | 2.42 | 2.37 | 2.31 | 2.25 | 2.18 | 2.11 | 2.04 | | | | | | | | | | | |
| 22 | 5.79 | 4.38 | 3.78 | 3.44 | 3.22 | 3.05 | 2.93 | 2.84 | 2.76 | 2.70 | 2.60 | 2.50 | 2.39 | 2.33 | 2.27 | 2.21 | 2.14 | 2.08 | 2.00 | | | | | | | | | | | |
| 23 | 5.75 | 4.35 | 3.75 | 3.41 | 3.18 | 3.02 | 2.90 | 2.81 | 2.73 | 2.67 | 2.57 | 2.47 | 2.36 | 2.30 | 2.24 | 2.18 | 2.11 | 2.04 | 1.97 | | | | | | | | | | | |
| 24 | 5.72 | 4.32 | 3.72 | 3.38 | 3.15 | 2.99 | 2.87 | 2.78 | 2.70 | 2.64 | 2.54 | 2.44 | 2.33 | 2.27 | 2.21 | 2.15 | 2.08 | 2.01 | 1.94 | | | | | | | | | | | |
| 25 | 5.69 | 4.29 | 3.69 | 3.35 | 3.13 | 2.97 | 2.85 | 2.75 | 2.68 | 2.61 | 2.51 | 2.41 | 2.30 | 2.24 | 2.18 | 2.12 | 2.05 | 1.98 | 1.91 | | | | | | | | | | | |
| 26 | 5.66 | 4.27 | 3.67 | 3.33 | 3.10 | 2.94 | 2.82 | 2.73 | 2.65 | 2.59 | 2.49 | 2.39 | 2.28 | 2.22 | 2.16 | 2.09 | 2.03 | 1.95 | 1.88 | | | | | | | | | | | |
| 27 | 5.63 | 4.24 | 3.65 | 3.31 | 3.08 | 2.92 | 2.80 | 2.71 | 2.63 | 2.57 | 2.47 | 2.36 | 2.25 | 2.19 | 2.13 | 2.07 | 2.00 | 1.93 | 1.85 | | | | | | | | | | | |
| 28 | 5.61 | 4.22 | 3.63 | 3.29 | 3.06 | 2.90 | 2.78 | 2.69 | 2.61 | 2.55 | 2.45 | 2.34 | 2.23 | 2.17 | 2.11 | 2.05 | 1.98 | 1.91 | 1.83 | | | | | | | | | | | |
| 29 | 5.59 | 4.20 | 3.61 | 3.27 | 3.04 | 2.88 | 2.76 | 2.67 | 2.59 | 2.53 | 2.43 | 2.32 | 2.21 | 2.15 | 2.09 | 2.03 | 1.96 | 1.89 | 1.81 | | | | | | | | | | | |
| 30 | 5.57 | 4.18 | 3.59 | 3.25 | 3.03 | 2.87 | 2.75 | 2.65 | 2.57 | 2.51 | 2.41 | 2.31 | 2.20 | 2.14 | 2.07 | 2.01 | 1.94 | 1.87 | 1.79 | | | | | | | | | | | |
| 40 | 5.42 | 4.05 | 3.46 | 3.13 | 2.90 | 2.74 | 2.62 | 2.53 | 2.45 | 2.39 | 2.29 | 2.18 | 2.07 | 2.01 | 1.94 | 1.88 | 1.80 | 1.72 | 1.64 | | | | | | | | | | | |
| 60 | 5.29 | 3.93 | 3.34 | 3.01 | 2.79 | 2.63 | 2.51 | 2.41 | 2.33 | 2.27 | 2.17 | 2.06 | 1.94 | 1.88 | 1.82 | 1.74 | 1.67 | 1.58 | 1.48 | | | | | | | | | | | |
| 120 | 5.15 | 3.80 | 3.23 | 2.89 | 2.67 | 2.53 | 2.39 | 2.30 | 2.22 | 2.16 | 2.05 | 1.94 | 1.82 | 1.76 | 1.69 | 1.61 | 1.53 | 1.43 | 1.31 | | | | | | | | | | | |
| ∞ | 5.02 | 3.69 | 3.12 | 2.79 | 2.57 | 2.41 | 2.29 | 2.19 | 2.11 | 2.05 | 1.94 | 1.83 | 1.71 | 1.64 | 1.57 | 1.48 | 1.39 | 1.27 | 1.00 | | | | | | | | | | | |

The percentage point $F_{\nu_1, \nu_2; q}$ of the F distributed random variable F_{ν_1, ν_2} with ν_1 and ν_2 degrees of freedom is defined as $Pr(F_{\nu_1, \nu_2} \leq F_{\nu_1, \nu_2; q}) = q$.

Percentage points of the F distribution $q = 0.99$

| ν_2 | Numerator degrees of freedom ν_1 | | | | | | | | | | | | | | | ∞ | | | |
|----------|--------------------------------------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|----------|-------|-------|-------|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 12 | 15 | 20 | 24 | 30 | 40 | 60 | 120 | |
| 1 | 4052 | 4999.5 | 5403 | 5625 | 5764 | 5859 | 5928 | 5982 | 6022 | 6056 | 6106 | 6257 | 6209 | 6235 | 6261 | 6287 | 6313 | 6339 | 6366 |
| 2 | 98.50 | 99.00 | 99.17 | 99.25 | 99.30 | 99.33 | 99.36 | 99.37 | 99.39 | 99.40 | 99.42 | 99.43 | 99.45 | 99.46 | 99.47 | 99.47 | 99.48 | 99.49 | 99.50 |
| 3 | 34.12 | 30.82 | 29.46 | 28.71 | 28.24 | 27.91 | 27.67 | 27.49 | 27.35 | 27.23 | 27.05 | 26.87 | 26.69 | 26.00 | 26.50 | 26.41 | 26.32 | 26.22 | 26.13 |
| 4 | 21.20 | 18.00 | 16.69 | 15.98 | 15.52 | 15.21 | 14.98 | 14.80 | 14.66 | 14.55 | 14.37 | 14.20 | 14.02 | 13.93 | 13.84 | 13.75 | 13.65 | 13.56 | 13.46 |
| 5 | 16.26 | 13.27 | 12.06 | 11.39 | 10.97 | 10.67 | 10.46 | 10.29 | 10.16 | 10.05 | 9.89 | 9.72 | 9.55 | 9.47 | 9.38 | 9.29 | 9.20 | 9.11 | 9.02 |
| 6 | 13.75 | 10.92 | 9.78 | 9.15 | 8.75 | 8.47 | 8.26 | 8.10 | 7.98 | 7.87 | 7.72 | 7.56 | 7.40 | 7.31 | 7.23 | 7.14 | 7.06 | 6.97 | 6.88 |
| 7 | 12.25 | 9.55 | 8.45 | 7.85 | 7.46 | 7.19 | 6.99 | 6.84 | 6.72 | 6.62 | 6.47 | 6.31 | 6.16 | 6.07 | 5.99 | 5.91 | 5.82 | 5.74 | 5.65 |
| 8 | 11.26 | 8.65 | 7.59 | 7.01 | 6.63 | 6.37 | 6.18 | 6.03 | 5.91 | 5.81 | 5.67 | 5.52 | 5.36 | 5.28 | 5.20 | 5.12 | 5.03 | 4.95 | 4.86 |
| 9 | 10.56 | 8.02 | 6.99 | 6.42 | 6.06 | 5.80 | 5.61 | 5.47 | 5.35 | 5.26 | 5.11 | 4.96 | 4.81 | 4.73 | 4.65 | 4.57 | 4.48 | 4.40 | 4.31 |
| 10 | 10.04 | 7.56 | 6.55 | 5.99 | 5.64 | 5.39 | 5.20 | 5.06 | 4.94 | 4.85 | 4.71 | 4.56 | 4.41 | 4.33 | 4.25 | 4.17 | 4.08 | 4.00 | 3.91 |
| 11 | 9.65 | 7.21 | 6.22 | 5.67 | 5.32 | 5.07 | 4.89 | 4.74 | 4.63 | 4.54 | 4.40 | 4.25 | 4.10 | 4.02 | 3.94 | 3.86 | 3.78 | 3.69 | 3.60 |
| 12 | 9.33 | 6.93 | 5.95 | 5.41 | 5.06 | 4.82 | 4.64 | 4.50 | 4.39 | 4.30 | 4.16 | 4.01 | 3.86 | 3.78 | 3.70 | 3.62 | 3.54 | 3.45 | 3.36 |
| 13 | 9.07 | 6.70 | 5.74 | 5.21 | 4.86 | 4.62 | 4.44 | 4.30 | 4.19 | 4.10 | 3.96 | 3.82 | 3.66 | 3.59 | 3.51 | 3.43 | 3.34 | 3.25 | 3.17 |
| 14 | 8.86 | 6.51 | 5.56 | 5.04 | 4.69 | 4.46 | 4.28 | 4.14 | 4.03 | 3.94 | 3.80 | 3.66 | 3.51 | 3.43 | 3.35 | 3.27 | 3.18 | 3.09 | 3.00 |
| 15 | 8.68 | 6.36 | 5.42 | 4.89 | 4.56 | 4.32 | 4.14 | 4.00 | 3.89 | 3.80 | 3.67 | 3.52 | 3.37 | 3.29 | 3.21 | 3.13 | 3.05 | 2.96 | 2.87 |
| 16 | 8.53 | 6.23 | 5.29 | 4.77 | 4.44 | 4.20 | 4.03 | 3.89 | 3.78 | 3.69 | 3.55 | 3.41 | 3.26 | 3.18 | 3.10 | 3.02 | 2.93 | 2.84 | 2.75 |
| 17 | 8.40 | 6.11 | 5.18 | 4.67 | 4.34 | 4.10 | 3.93 | 3.79 | 3.68 | 3.59 | 3.46 | 3.31 | 3.16 | 3.08 | 3.00 | 2.92 | 2.83 | 2.75 | 2.65 |
| 18 | 8.29 | 6.01 | 5.09 | 4.58 | 4.25 | 4.01 | 3.84 | 3.71 | 3.60 | 3.51 | 3.37 | 3.23 | 3.08 | 3.00 | 2.92 | 2.84 | 2.75 | 2.66 | 2.57 |
| 19 | 8.18 | 5.93 | 5.01 | 4.50 | 4.17 | 3.94 | 3.77 | 3.63 | 3.52 | 3.43 | 3.30 | 3.15 | 3.00 | 2.92 | 2.84 | 2.76 | 2.67 | 2.58 | 2.50 |
| 20 | 8.10 | 5.85 | 4.94 | 4.43 | 4.10 | 3.87 | 3.70 | 3.56 | 3.46 | 3.37 | 3.23 | 3.09 | 2.94 | 2.86 | 2.78 | 2.69 | 2.61 | 2.52 | 2.42 |
| 21 | 8.02 | 5.78 | 4.87 | 4.37 | 4.04 | 3.81 | 3.64 | 3.51 | 3.40 | 3.31 | 3.17 | 3.03 | 2.88 | 2.80 | 2.72 | 2.64 | 2.55 | 2.46 | 2.36 |
| 22 | 7.95 | 5.72 | 4.82 | 4.31 | 3.99 | 3.76 | 3.59 | 3.45 | 3.35 | 3.26 | 3.12 | 2.98 | 2.83 | 2.75 | 2.67 | 2.58 | 2.50 | 2.40 | 2.31 |
| 23 | 7.88 | 5.66 | 4.76 | 4.26 | 3.94 | 3.71 | 3.54 | 3.41 | 3.30 | 3.21 | 3.07 | 2.93 | 2.78 | 2.70 | 2.62 | 2.54 | 2.45 | 2.35 | 2.26 |
| 24 | 7.82 | 5.61 | 4.72 | 4.22 | 3.90 | 3.67 | 3.50 | 3.36 | 3.26 | 3.17 | 3.03 | 2.89 | 2.74 | 2.66 | 2.58 | 2.49 | 2.40 | 2.31 | 2.21 |
| 25 | 7.77 | 5.57 | 4.68 | 4.18 | 3.85 | 3.63 | 3.46 | 3.32 | 3.22 | 3.13 | 2.99 | 2.85 | 2.70 | 2.62 | 2.54 | 2.45 | 2.36 | 2.27 | 2.17 |
| 26 | 7.72 | 5.53 | 4.64 | 4.14 | 3.82 | 3.59 | 3.42 | 3.29 | 3.18 | 3.09 | 2.96 | 2.81 | 2.66 | 2.58 | 2.50 | 2.42 | 2.33 | 2.23 | 2.13 |
| 27 | 7.68 | 5.49 | 4.60 | 4.11 | 3.78 | 3.56 | 3.39 | 3.26 | 3.15 | 3.06 | 2.93 | 2.78 | 2.63 | 2.55 | 2.47 | 2.38 | 2.29 | 2.20 | 2.10 |
| 28 | 7.64 | 5.45 | 4.57 | 4.07 | 3.75 | 3.53 | 3.36 | 3.23 | 3.12 | 3.03 | 2.90 | 2.75 | 2.60 | 2.52 | 2.44 | 2.35 | 2.26 | 2.17 | 2.06 |
| 29 | 7.60 | 5.42 | 4.54 | 4.04 | 3.73 | 3.50 | 3.33 | 3.20 | 3.09 | 3.00 | 2.87 | 2.73 | 2.57 | 2.49 | 2.41 | 2.33 | 2.23 | 2.14 | 2.03 |
| 30 | 7.56 | 5.39 | 4.51 | 4.02 | 3.70 | 3.47 | 3.30 | 3.17 | 3.07 | 2.98 | 2.84 | 2.70 | 2.55 | 2.47 | 2.39 | 2.30 | 2.21 | 2.11 | 2.01 |
| 40 | 7.31 | 5.18 | 4.31 | 3.83 | 3.51 | 3.29 | 3.12 | 2.99 | 2.89 | 2.80 | 2.66 | 2.52 | 2.37 | 2.29 | 2.20 | 2.11 | 2.02 | 1.92 | 1.80 |
| 60 | 7.08 | 4.98 | 4.13 | 3.65 | 3.34 | 3.12 | 2.95 | 2.82 | 2.72 | 2.63 | 2.50 | 2.35 | 2.20 | 2.12 | 2.03 | 1.94 | 1.84 | 1.73 | 1.60 |
| 120 | 6.85 | 4.79 | 3.95 | 3.45 | 3.17 | 2.96 | 2.79 | 2.66 | 2.56 | 2.47 | 2.34 | 2.19 | 2.03 | 1.95 | 1.86 | 1.76 | 1.66 | 1.53 | 1.38 |
| ∞ | 6.63 | 4.61 | 3.78 | 3.32 | 3.02 | 2.80 | 2.64 | 2.51 | 2.41 | 2.32 | 2.18 | 2.04 | 1.88 | 1.79 | 1.70 | 1.59 | 1.47 | 1.32 | 1.00 |

The percentage point $F_{\nu_1, \nu_2; q}$ of the F distributed random variable F_{ν_1, ν_2} with ν_1 and ν_2 degrees of freedom is defined as $Pr(F_{\nu_1, \nu_2} \leq F_{\nu_1, \nu_2; q}) = q$.