

*Mr. G's Handbook of Mathematics*

# Statistical Tables

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## **Mr. G's Handbook of Mathematics**

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| Tbl. I | Cumulative Distribution Function $\Phi(z) - \Phi(0) = \frac{1}{\sqrt{(2\pi)}} \int_0^z e^{-\frac{1}{2}t^2} dt$ rg $\infty$ |        |        |        |        |        |        |        |        |        |
|--------|----------------------------------------------------------------------------------------------------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| z      | 0.00                                                                                                                       | 0.01   | 0.02   | 0.03   | 0.04   | 0.05   | 0.06   | 0.07   | 0.08   | 0.09   |
| 0.00   | 0.0000                                                                                                                     | 0.0040 | 0.0080 | 0.0120 | 0.0160 | 0.0199 | 0.0239 | 0.0279 | 0.0319 | 0.0359 |
| 0.10   | 0.0398                                                                                                                     | 0.0438 | 0.0478 | 0.0517 | 0.0557 | 0.0596 | 0.0636 | 0.0675 | 0.0714 | 0.0753 |
| 0.20   | 0.0793                                                                                                                     | 0.0832 | 0.0871 | 0.0910 | 0.0948 | 0.0987 | 0.1026 | 0.1064 | 0.1103 | 0.1141 |
| 0.30   | 0.1179                                                                                                                     | 0.1217 | 0.1255 | 0.1293 | 0.1331 | 0.1368 | 0.1406 | 0.1443 | 0.1480 | 0.1517 |
| 0.40   | 0.1554                                                                                                                     | 0.1591 | 0.1628 | 0.1664 | 0.1700 | 0.1736 | 0.1772 | 0.1808 | 0.1844 | 0.1879 |
| 0.50   | 0.1915                                                                                                                     | 0.1950 | 0.1985 | 0.2019 | 0.2054 | 0.2088 | 0.2123 | 0.2157 | 0.2190 | 0.2224 |
| 0.60   | 0.2257                                                                                                                     | 0.2291 | 0.2324 | 0.2357 | 0.2389 | 0.2422 | 0.2454 | 0.2486 | 0.2517 | 0.2549 |
| 0.70   | 0.2580                                                                                                                     | 0.2611 | 0.2642 | 0.2673 | 0.2704 | 0.2734 | 0.2764 | 0.2794 | 0.2823 | 0.2852 |
| 0.80   | 0.2881                                                                                                                     | 0.2910 | 0.2939 | 0.2967 | 0.2995 | 0.3023 | 0.3051 | 0.3078 | 0.3106 | 0.3133 |
| 0.90   | 0.3159                                                                                                                     | 0.3186 | 0.3212 | 0.3238 | 0.3264 | 0.3289 | 0.3315 | 0.3340 | 0.3365 | 0.3389 |
| 1.00   | 0.3413                                                                                                                     | 0.3438 | 0.3461 | 0.3485 | 0.3508 | 0.3531 | 0.3554 | 0.3577 | 0.3599 | 0.3621 |
| 1.10   | 0.3643                                                                                                                     | 0.3665 | 0.3686 | 0.3708 | 0.3729 | 0.3749 | 0.3770 | 0.3790 | 0.3810 | 0.3830 |
| 1.20   | 0.3849                                                                                                                     | 0.3869 | 0.3888 | 0.3907 | 0.3925 | 0.3944 | 0.3962 | 0.3980 | 0.3997 | 0.4015 |
| 1.30   | 0.4032                                                                                                                     | 0.4049 | 0.4066 | 0.4082 | 0.4099 | 0.4115 | 0.4131 | 0.4147 | 0.4162 | 0.4177 |
| 1.40   | 0.4192                                                                                                                     | 0.4207 | 0.4222 | 0.4236 | 0.4251 | 0.4265 | 0.4279 | 0.4292 | 0.4306 | 0.4319 |
| 1.50   | 0.4332                                                                                                                     | 0.4345 | 0.4357 | 0.4370 | 0.4382 | 0.4394 | 0.4406 | 0.4418 | 0.4429 | 0.4441 |
| 1.60   | 0.4452                                                                                                                     | 0.4463 | 0.4474 | 0.4484 | 0.4495 | 0.4505 | 0.4515 | 0.4525 | 0.4535 | 0.4545 |
| 1.70   | 0.4554                                                                                                                     | 0.4564 | 0.4573 | 0.4582 | 0.4591 | 0.4599 | 0.4608 | 0.4616 | 0.4625 | 0.4633 |
| 1.80   | 0.4641                                                                                                                     | 0.4649 | 0.4656 | 0.4664 | 0.4671 | 0.4678 | 0.4686 | 0.4693 | 0.4699 | 0.4706 |
| 1.90   | 0.4713                                                                                                                     | 0.4719 | 0.4726 | 0.4732 | 0.4738 | 0.4744 | 0.4750 | 0.4756 | 0.4761 | 0.4767 |
| 2.00   | 0.4772                                                                                                                     | 0.4778 | 0.4783 | 0.4788 | 0.4793 | 0.4798 | 0.4803 | 0.4808 | 0.4812 | 0.4817 |
| 2.10   | 0.4821                                                                                                                     | 0.4826 | 0.4830 | 0.4834 | 0.4838 | 0.4842 | 0.4846 | 0.4850 | 0.4854 | 0.4857 |
| 2.20   | 0.4861                                                                                                                     | 0.4864 | 0.4868 | 0.4871 | 0.4875 | 0.4878 | 0.4881 | 0.4884 | 0.4887 | 0.4890 |
| 2.30   | 0.4893                                                                                                                     | 0.4896 | 0.4898 | 0.4901 | 0.4904 | 0.4906 | 0.4909 | 0.4911 | 0.4913 | 0.4916 |
| 2.40   | 0.4918                                                                                                                     | 0.4920 | 0.4922 | 0.4925 | 0.4927 | 0.4929 | 0.4931 | 0.4932 | 0.4934 | 0.4936 |
| 2.50   | 0.4938                                                                                                                     | 0.4940 | 0.4941 | 0.4943 | 0.4945 | 0.4946 | 0.4948 | 0.4949 | 0.4951 | 0.4952 |
| 2.60   | 0.4953                                                                                                                     | 0.4955 | 0.4956 | 0.4957 | 0.4959 | 0.4960 | 0.4961 | 0.4962 | 0.4963 | 0.4964 |
| 2.70   | 0.4965                                                                                                                     | 0.4966 | 0.4967 | 0.4968 | 0.4969 | 0.4970 | 0.4971 | 0.4972 | 0.4973 | 0.4974 |
| 2.80   | 0.4974                                                                                                                     | 0.4975 | 0.4976 | 0.4977 | 0.4977 | 0.4978 | 0.4979 | 0.4979 | 0.4980 | 0.4981 |
| 2.90   | 0.4981                                                                                                                     | 0.4982 | 0.4982 | 0.4983 | 0.4984 | 0.4984 | 0.4985 | 0.4985 | 0.4986 | 0.4986 |
| 3.00   | 0.4987                                                                                                                     | 0.4987 | 0.4987 | 0.4988 | 0.4988 | 0.4989 | 0.4989 | 0.4989 | 0.4990 | 0.4990 |
| 3.10   | 0.4990                                                                                                                     | 0.4991 | 0.4991 | 0.4991 | 0.4992 | 0.4992 | 0.4992 | 0.4992 | 0.4993 | 0.4993 |
| 3.20   | 0.4993                                                                                                                     | 0.4993 | 0.4994 | 0.4994 | 0.4994 | 0.4994 | 0.4994 | 0.4995 | 0.4995 | 0.4995 |
| 3.30   | 0.4995                                                                                                                     | 0.4995 | 0.4995 | 0.4996 | 0.4996 | 0.4996 | 0.4996 | 0.4996 | 0.4996 | 0.4997 |
| 3.40   | 0.4997                                                                                                                     | 0.4997 | 0.4997 | 0.4997 | 0.4997 | 0.4997 | 0.4997 | 0.4997 | 0.4997 | 0.4998 |
| 3.50   | 0.4998                                                                                                                     | 0.4998 | 0.4998 | 0.4998 | 0.4998 | 0.4998 | 0.4998 | 0.4998 | 0.4998 | 0.4998 |

This is the area from 0 (the centre) to the positive z value. Baseline presentation.

| Tbl.2 Cumulative Distribution Function $\Phi(z) = \frac{1}{\sqrt{2\pi}} \int_{-\infty}^z e^{-\frac{1}{2}t^2} dt$ rg ∞ |        |        |        |        |        |        |        |        |        |        |
|-----------------------------------------------------------------------------------------------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| z                                                                                                                     | 0.00   | 0.01   | 0.02   | 0.03   | 0.04   | 0.05   | 0.06   | 0.07   | 0.08   | 0.09   |
| 0.00                                                                                                                  | 0.5000 | 0.5040 | 0.5080 | 0.5120 | 0.5160 | 0.5199 | 0.5239 | 0.5279 | 0.5319 | 0.5359 |
| 0.10                                                                                                                  | 0.5398 | 0.5438 | 0.5478 | 0.5517 | 0.5557 | 0.5596 | 0.5636 | 0.5675 | 0.5714 | 0.5753 |
| 0.20                                                                                                                  | 0.5793 | 0.5832 | 0.5871 | 0.5910 | 0.5948 | 0.5987 | 0.6026 | 0.6064 | 0.6103 | 0.6141 |
| 0.30                                                                                                                  | 0.6179 | 0.6217 | 0.6255 | 0.6293 | 0.6331 | 0.6368 | 0.6406 | 0.6443 | 0.6480 | 0.6517 |
| 0.40                                                                                                                  | 0.6554 | 0.6591 | 0.6628 | 0.6664 | 0.6700 | 0.6736 | 0.6772 | 0.6808 | 0.6844 | 0.6879 |
| 0.50                                                                                                                  | 0.6915 | 0.6950 | 0.6985 | 0.7019 | 0.7054 | 0.7088 | 0.7123 | 0.7157 | 0.7190 | 0.7224 |
| 0.60                                                                                                                  | 0.7257 | 0.7291 | 0.7324 | 0.7357 | 0.7389 | 0.7422 | 0.7454 | 0.7486 | 0.7517 | 0.7549 |
| 0.70                                                                                                                  | 0.7580 | 0.7611 | 0.7642 | 0.7673 | 0.7704 | 0.7734 | 0.7764 | 0.7794 | 0.7823 | 0.7852 |
| 0.80                                                                                                                  | 0.7881 | 0.7910 | 0.7939 | 0.7967 | 0.7995 | 0.8023 | 0.8051 | 0.8078 | 0.8106 | 0.8133 |
| 0.90                                                                                                                  | 0.8159 | 0.8186 | 0.8212 | 0.8238 | 0.8264 | 0.8289 | 0.8315 | 0.8340 | 0.8365 | 0.8389 |
| 1.00                                                                                                                  | 0.8413 | 0.8438 | 0.8461 | 0.8485 | 0.8508 | 0.8531 | 0.8554 | 0.8577 | 0.8599 | 0.8621 |
| 1.10                                                                                                                  | 0.8643 | 0.8665 | 0.8686 | 0.8708 | 0.8729 | 0.8749 | 0.8770 | 0.8790 | 0.8810 | 0.8830 |
| 1.20                                                                                                                  | 0.8849 | 0.8869 | 0.8888 | 0.8907 | 0.8925 | 0.8944 | 0.8962 | 0.8980 | 0.8997 | 0.9015 |
| 1.30                                                                                                                  | 0.9032 | 0.9049 | 0.9066 | 0.9082 | 0.9099 | 0.9115 | 0.9131 | 0.9147 | 0.9162 | 0.9177 |
| 1.40                                                                                                                  | 0.9192 | 0.9207 | 0.9222 | 0.9236 | 0.9251 | 0.9265 | 0.9279 | 0.9292 | 0.9306 | 0.9319 |
| 1.50                                                                                                                  | 0.9332 | 0.9345 | 0.9357 | 0.9370 | 0.9382 | 0.9394 | 0.9406 | 0.9418 | 0.9429 | 0.9441 |
| 1.60                                                                                                                  | 0.9452 | 0.9463 | 0.9474 | 0.9484 | 0.9495 | 0.9505 | 0.9515 | 0.9525 | 0.9535 | 0.9545 |
| 1.70                                                                                                                  | 0.9554 | 0.9564 | 0.9573 | 0.9582 | 0.9591 | 0.9599 | 0.9608 | 0.9616 | 0.9625 | 0.9633 |
| 1.80                                                                                                                  | 0.9641 | 0.9649 | 0.9656 | 0.9664 | 0.9671 | 0.9678 | 0.9686 | 0.9693 | 0.9699 | 0.9706 |
| 1.90                                                                                                                  | 0.9713 | 0.9719 | 0.9726 | 0.9732 | 0.9738 | 0.9744 | 0.9750 | 0.9756 | 0.9761 | 0.9767 |
| 2.00                                                                                                                  | 0.9772 | 0.9778 | 0.9783 | 0.9788 | 0.9793 | 0.9798 | 0.9803 | 0.9808 | 0.9812 | 0.9817 |
| 2.10                                                                                                                  | 0.9821 | 0.9826 | 0.9830 | 0.9834 | 0.9838 | 0.9842 | 0.9846 | 0.9850 | 0.9854 | 0.9857 |
| 2.20                                                                                                                  | 0.9861 | 0.9864 | 0.9868 | 0.9871 | 0.9875 | 0.9878 | 0.9881 | 0.9884 | 0.9887 | 0.9890 |
| 2.30                                                                                                                  | 0.9893 | 0.9896 | 0.9898 | 0.9901 | 0.9904 | 0.9906 | 0.9909 | 0.9911 | 0.9913 | 0.9916 |
| 2.40                                                                                                                  | 0.9918 | 0.9920 | 0.9922 | 0.9925 | 0.9927 | 0.9929 | 0.9931 | 0.9932 | 0.9934 | 0.9936 |
| 2.50                                                                                                                  | 0.9938 | 0.9940 | 0.9941 | 0.9943 | 0.9945 | 0.9946 | 0.9948 | 0.9949 | 0.9951 | 0.9952 |
| 2.60                                                                                                                  | 0.9953 | 0.9955 | 0.9956 | 0.9957 | 0.9959 | 0.9960 | 0.9961 | 0.9962 | 0.9963 | 0.9964 |
| 2.70                                                                                                                  | 0.9965 | 0.9966 | 0.9967 | 0.9968 | 0.9969 | 0.9970 | 0.9971 | 0.9972 | 0.9973 | 0.9974 |
| 2.80                                                                                                                  | 0.9974 | 0.9975 | 0.9976 | 0.9977 | 0.9977 | 0.9978 | 0.9979 | 0.9979 | 0.9980 | 0.9981 |
| 2.90                                                                                                                  | 0.9981 | 0.9982 | 0.9982 | 0.9983 | 0.9984 | 0.9984 | 0.9985 | 0.9985 | 0.9986 | 0.9986 |
| 3.00                                                                                                                  | 0.9987 | 0.9987 | 0.9987 | 0.9988 | 0.9988 | 0.9989 | 0.9989 | 0.9989 | 0.9990 | 0.9990 |
| 3.10                                                                                                                  | 0.9990 | 0.9991 | 0.9991 | 0.9991 | 0.9992 | 0.9992 | 0.9992 | 0.9992 | 0.9993 | 0.9993 |
| 3.20                                                                                                                  | 0.9993 | 0.9993 | 0.9994 | 0.9994 | 0.9994 | 0.9994 | 0.9994 | 0.9995 | 0.9995 | 0.9995 |
| 3.30                                                                                                                  | 0.9995 | 0.9995 | 0.9995 | 0.9996 | 0.9996 | 0.9996 | 0.9996 | 0.9996 | 0.9996 | 0.9997 |
| 3.40                                                                                                                  | 0.9997 | 0.9997 | 0.9997 | 0.9997 | 0.9997 | 0.9997 | 0.9997 | 0.9997 | 0.9997 | 0.9998 |
| 3.50                                                                                                                  | 0.9998 | 0.9998 | 0.9998 | 0.9998 | 0.9998 | 0.9998 | 0.9998 | 0.9998 | 0.9998 | 0.9998 |

One tailed "inside" area. Values are Table I + 0.5

| Tbl.3 | Cumulative Distribution Function $\Phi(z) - \Phi(-z) = \frac{1}{\sqrt{(2\pi)}} \int_{-z}^z e^{-\frac{1}{2}t^2} dt$ rg $\infty$ |        |        |        |        |        |        |        |        |        |
|-------|--------------------------------------------------------------------------------------------------------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| z     | 0.00                                                                                                                           | 0.01   | 0.02   | 0.03   | 0.04   | 0.05   | 0.06   | 0.07   | 0.08   | 0.09   |
| 0.00  | 0.0000                                                                                                                         | 0.0080 | 0.0160 | 0.0239 | 0.0319 | 0.0399 | 0.0478 | 0.0558 | 0.0638 | 0.0717 |
| 0.10  | 0.0797                                                                                                                         | 0.0876 | 0.0955 | 0.1034 | 0.1113 | 0.1192 | 0.1271 | 0.1350 | 0.1428 | 0.1507 |
| 0.20  | 0.1585                                                                                                                         | 0.1663 | 0.1741 | 0.1819 | 0.1897 | 0.1974 | 0.2051 | 0.2128 | 0.2205 | 0.2282 |
| 0.30  | 0.2358                                                                                                                         | 0.2434 | 0.2510 | 0.2586 | 0.2661 | 0.2737 | 0.2812 | 0.2886 | 0.2961 | 0.3035 |
| 0.40  | 0.3108                                                                                                                         | 0.3182 | 0.3255 | 0.3328 | 0.3401 | 0.3473 | 0.3545 | 0.3616 | 0.3688 | 0.3759 |
| 0.50  | 0.3829                                                                                                                         | 0.3899 | 0.3969 | 0.4039 | 0.4108 | 0.4177 | 0.4245 | 0.4313 | 0.4381 | 0.4448 |
| 0.60  | 0.4515                                                                                                                         | 0.4581 | 0.4647 | 0.4713 | 0.4778 | 0.4843 | 0.4907 | 0.4971 | 0.5035 | 0.5098 |
| 0.70  | 0.5161                                                                                                                         | 0.5223 | 0.5285 | 0.5346 | 0.5407 | 0.5467 | 0.5527 | 0.5587 | 0.5646 | 0.5705 |
| 0.80  | 0.5763                                                                                                                         | 0.5821 | 0.5878 | 0.5935 | 0.5991 | 0.6047 | 0.6102 | 0.6157 | 0.6211 | 0.6265 |
| 0.90  | 0.6319                                                                                                                         | 0.6372 | 0.6424 | 0.6476 | 0.6528 | 0.6579 | 0.6629 | 0.6680 | 0.6729 | 0.6778 |
| 1.00  | 0.6827                                                                                                                         | 0.6875 | 0.6923 | 0.6970 | 0.7017 | 0.7063 | 0.7109 | 0.7154 | 0.7199 | 0.7243 |
| 1.10  | 0.7287                                                                                                                         | 0.7330 | 0.7373 | 0.7415 | 0.7457 | 0.7499 | 0.7540 | 0.7580 | 0.7620 | 0.7660 |
| 1.20  | 0.7699                                                                                                                         | 0.7737 | 0.7775 | 0.7813 | 0.7850 | 0.7887 | 0.7923 | 0.7959 | 0.7995 | 0.8029 |
| 1.30  | 0.8064                                                                                                                         | 0.8098 | 0.8132 | 0.8165 | 0.8198 | 0.8230 | 0.8262 | 0.8293 | 0.8324 | 0.8355 |
| 1.40  | 0.8385                                                                                                                         | 0.8415 | 0.8444 | 0.8473 | 0.8501 | 0.8529 | 0.8557 | 0.8584 | 0.8611 | 0.8638 |
| 1.50  | 0.8664                                                                                                                         | 0.8690 | 0.8715 | 0.8740 | 0.8764 | 0.8789 | 0.8812 | 0.8836 | 0.8859 | 0.8882 |
| 1.60  | 0.8904                                                                                                                         | 0.8926 | 0.8948 | 0.8969 | 0.8990 | 0.9011 | 0.9031 | 0.9051 | 0.9070 | 0.9090 |
| 1.70  | 0.9109                                                                                                                         | 0.9127 | 0.9146 | 0.9164 | 0.9181 | 0.9199 | 0.9216 | 0.9233 | 0.9249 | 0.9265 |
| 1.80  | 0.9281                                                                                                                         | 0.9297 | 0.9312 | 0.9328 | 0.9342 | 0.9357 | 0.9371 | 0.9385 | 0.9399 | 0.9412 |
| 1.90  | 0.9426                                                                                                                         | 0.9439 | 0.9451 | 0.9464 | 0.9476 | 0.9488 | 0.9500 | 0.9512 | 0.9523 | 0.9534 |
| 2.00  | 0.9545                                                                                                                         | 0.9556 | 0.9566 | 0.9576 | 0.9586 | 0.9596 | 0.9606 | 0.9615 | 0.9625 | 0.9634 |
| 2.10  | 0.9643                                                                                                                         | 0.9651 | 0.9660 | 0.9668 | 0.9676 | 0.9684 | 0.9692 | 0.9700 | 0.9707 | 0.9715 |
| 2.20  | 0.9722                                                                                                                         | 0.9729 | 0.9736 | 0.9743 | 0.9749 | 0.9756 | 0.9762 | 0.9768 | 0.9774 | 0.9780 |
| 2.30  | 0.9786                                                                                                                         | 0.9791 | 0.9797 | 0.9802 | 0.9807 | 0.9812 | 0.9817 | 0.9822 | 0.9827 | 0.9832 |
| 2.40  | 0.9836                                                                                                                         | 0.9840 | 0.9845 | 0.9849 | 0.9853 | 0.9857 | 0.9861 | 0.9865 | 0.9869 | 0.9872 |
| 2.50  | 0.9876                                                                                                                         | 0.9879 | 0.9883 | 0.9886 | 0.9889 | 0.9892 | 0.9895 | 0.9898 | 0.9901 | 0.9904 |
| 2.60  | 0.9907                                                                                                                         | 0.9909 | 0.9912 | 0.9915 | 0.9917 | 0.9920 | 0.9922 | 0.9924 | 0.9926 | 0.9929 |
| 2.70  | 0.9931                                                                                                                         | 0.9933 | 0.9935 | 0.9937 | 0.9939 | 0.9940 | 0.9942 | 0.9944 | 0.9946 | 0.9947 |
| 2.80  | 0.9949                                                                                                                         | 0.9950 | 0.9952 | 0.9953 | 0.9955 | 0.9956 | 0.9958 | 0.9959 | 0.9960 | 0.9961 |
| 2.90  | 0.9963                                                                                                                         | 0.9964 | 0.9965 | 0.9966 | 0.9967 | 0.9968 | 0.9969 | 0.9970 | 0.9971 | 0.9972 |
| 3.00  | 0.9973                                                                                                                         | 0.9974 | 0.9975 | 0.9976 | 0.9976 | 0.9977 | 0.9978 | 0.9979 | 0.9979 | 0.9980 |
| 3.10  | 0.9981                                                                                                                         | 0.9981 | 0.9982 | 0.9983 | 0.9983 | 0.9984 | 0.9984 | 0.9985 | 0.9985 | 0.9986 |
| 3.20  | 0.9986                                                                                                                         | 0.9987 | 0.9987 | 0.9988 | 0.9988 | 0.9988 | 0.9989 | 0.9989 | 0.9990 | 0.9990 |
| 3.30  | 0.9990                                                                                                                         | 0.9991 | 0.9991 | 0.9991 | 0.9992 | 0.9992 | 0.9992 | 0.9992 | 0.9993 | 0.9993 |
| 3.40  | 0.9993                                                                                                                         | 0.9994 | 0.9994 | 0.9994 | 0.9994 | 0.9994 | 0.9995 | 0.9995 | 0.9995 | 0.9995 |
| 3.50  | 0.9995                                                                                                                         | 0.9996 | 0.9996 | 0.9996 | 0.9996 | 0.9996 | 0.9996 | 0.9996 | 0.9997 | 0.9997 |

Two tailed "central" area. Values twice those of Table I.

| Tbl.4 | Cumulative Distribution Function – $\Phi(z) = \Phi(-z) = \frac{1}{\sqrt{2\pi}} \int_z^\infty e^{-\frac{1}{2}t^2} dt$ rg $\infty$ |        |        |        |        |        |        |        |        |        |
|-------|----------------------------------------------------------------------------------------------------------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| z     | 0.00                                                                                                                             | 0.01   | 0.02   | 0.03   | 0.04   | 0.05   | 0.06   | 0.07   | 0.08   | 0.09   |
| 0.00  | 0.5000                                                                                                                           | 0.4960 | 0.4920 | 0.4880 | 0.4840 | 0.4801 | 0.4761 | 0.4721 | 0.4681 | 0.4641 |
| 0.10  | 0.4602                                                                                                                           | 0.4562 | 0.4522 | 0.4483 | 0.4443 | 0.4404 | 0.4364 | 0.4325 | 0.4286 | 0.4247 |
| 0.20  | 0.4207                                                                                                                           | 0.4168 | 0.4129 | 0.4090 | 0.4052 | 0.4013 | 0.3974 | 0.3936 | 0.3897 | 0.3859 |
| 0.30  | 0.3821                                                                                                                           | 0.3783 | 0.3745 | 0.3707 | 0.3669 | 0.3632 | 0.3594 | 0.3557 | 0.3520 | 0.3483 |
| 0.40  | 0.3446                                                                                                                           | 0.3409 | 0.3372 | 0.3336 | 0.3300 | 0.3264 | 0.3228 | 0.3192 | 0.3156 | 0.3121 |
| 0.50  | 0.3085                                                                                                                           | 0.3050 | 0.3015 | 0.2981 | 0.2946 | 0.2912 | 0.2877 | 0.2843 | 0.2810 | 0.2776 |
| 0.60  | 0.2743                                                                                                                           | 0.2709 | 0.2676 | 0.2643 | 0.2611 | 0.2578 | 0.2546 | 0.2514 | 0.2483 | 0.2451 |
| 0.70  | 0.2420                                                                                                                           | 0.2389 | 0.2358 | 0.2327 | 0.2296 | 0.2266 | 0.2236 | 0.2206 | 0.2177 | 0.2148 |
| 0.80  | 0.2119                                                                                                                           | 0.2090 | 0.2061 | 0.2033 | 0.2005 | 0.1977 | 0.1949 | 0.1922 | 0.1894 | 0.1867 |
| 0.90  | 0.1841                                                                                                                           | 0.1814 | 0.1788 | 0.1762 | 0.1736 | 0.1711 | 0.1685 | 0.1660 | 0.1635 | 0.1611 |
| 1.00  | 0.1587                                                                                                                           | 0.1562 | 0.1539 | 0.1515 | 0.1492 | 0.1469 | 0.1446 | 0.1423 | 0.1401 | 0.1379 |
| 1.10  | 0.1357                                                                                                                           | 0.1335 | 0.1314 | 0.1292 | 0.1271 | 0.1251 | 0.1230 | 0.1210 | 0.1190 | 0.1170 |
| 1.20  | 0.1151                                                                                                                           | 0.1131 | 0.1112 | 0.1093 | 0.1075 | 0.1056 | 0.1038 | 0.1020 | 0.1003 | 0.0985 |
| 1.30  | 0.0968                                                                                                                           | 0.0951 | 0.0934 | 0.0918 | 0.0901 | 0.0885 | 0.0869 | 0.0853 | 0.0838 | 0.0823 |
| 1.40  | 0.0808                                                                                                                           | 0.0793 | 0.0778 | 0.0764 | 0.0749 | 0.0735 | 0.0721 | 0.0708 | 0.0694 | 0.0681 |
| 1.50  | 0.0668                                                                                                                           | 0.0655 | 0.0643 | 0.0630 | 0.0618 | 0.0606 | 0.0594 | 0.0582 | 0.0571 | 0.0559 |
| 1.60  | 0.0548                                                                                                                           | 0.0537 | 0.0526 | 0.0516 | 0.0505 | 0.0495 | 0.0485 | 0.0475 | 0.0465 | 0.0455 |
| 1.70  | 0.0446                                                                                                                           | 0.0436 | 0.0427 | 0.0418 | 0.0409 | 0.0401 | 0.0392 | 0.0384 | 0.0375 | 0.0367 |
| 1.80  | 0.0359                                                                                                                           | 0.0351 | 0.0344 | 0.0336 | 0.0329 | 0.0322 | 0.0314 | 0.0307 | 0.0301 | 0.0294 |
| 1.90  | 0.0287                                                                                                                           | 0.0281 | 0.0274 | 0.0268 | 0.0262 | 0.0256 | 0.0250 | 0.0244 | 0.0239 | 0.0233 |
| 2.00  | 0.0228                                                                                                                           | 0.0222 | 0.0217 | 0.0212 | 0.0207 | 0.0202 | 0.0197 | 0.0192 | 0.0188 | 0.0183 |
| 2.10  | 0.0179                                                                                                                           | 0.0174 | 0.0170 | 0.0166 | 0.0162 | 0.0158 | 0.0154 | 0.0150 | 0.0146 | 0.0143 |
| 2.20  | 0.0139                                                                                                                           | 0.0136 | 0.0132 | 0.0129 | 0.0125 | 0.0122 | 0.0119 | 0.0116 | 0.0113 | 0.0110 |
| 2.30  | 0.0107                                                                                                                           | 0.0104 | 0.0102 | 0.0099 | 0.0096 | 0.0094 | 0.0091 | 0.0089 | 0.0087 | 0.0084 |
| 2.40  | 0.0082                                                                                                                           | 0.0080 | 0.0078 | 0.0075 | 0.0073 | 0.0071 | 0.0069 | 0.0068 | 0.0066 | 0.0064 |
| 2.50  | 0.0062                                                                                                                           | 0.0060 | 0.0059 | 0.0057 | 0.0055 | 0.0054 | 0.0052 | 0.0051 | 0.0049 | 0.0048 |
| 2.60  | 0.0047                                                                                                                           | 0.0045 | 0.0044 | 0.0043 | 0.0041 | 0.0040 | 0.0039 | 0.0038 | 0.0037 | 0.0036 |
| 2.70  | 0.0035                                                                                                                           | 0.0034 | 0.0033 | 0.0032 | 0.0031 | 0.0030 | 0.0029 | 0.0028 | 0.0027 | 0.0026 |
| 2.80  | 0.0026                                                                                                                           | 0.0025 | 0.0024 | 0.0023 | 0.0023 | 0.0022 | 0.0021 | 0.0021 | 0.0020 | 0.0019 |
| 2.90  | 0.0019                                                                                                                           | 0.0018 | 0.0018 | 0.0017 | 0.0016 | 0.0016 | 0.0015 | 0.0015 | 0.0014 | 0.0014 |
| 3.00  | 0.0013                                                                                                                           | 0.0013 | 0.0013 | 0.0012 | 0.0012 | 0.0011 | 0.0011 | 0.0011 | 0.0010 | 0.0010 |
| 3.10  | 0.0010                                                                                                                           | 0.0009 | 0.0009 | 0.0009 | 0.0008 | 0.0008 | 0.0008 | 0.0008 | 0.0007 | 0.0007 |
| 3.20  | 0.0007                                                                                                                           | 0.0007 | 0.0006 | 0.0006 | 0.0006 | 0.0006 | 0.0006 | 0.0005 | 0.0005 | 0.0005 |
| 3.30  | 0.0005                                                                                                                           | 0.0005 | 0.0005 | 0.0004 | 0.0004 | 0.0004 | 0.0004 | 0.0004 | 0.0004 | 0.0003 |
| 3.40  | 0.0003                                                                                                                           | 0.0003 | 0.0003 | 0.0003 | 0.0003 | 0.0003 | 0.0003 | 0.0003 | 0.0003 | 0.0002 |
| 3.50  | 0.0002                                                                                                                           | 0.0002 | 0.0002 | 0.0002 | 0.0002 | 0.0002 | 0.0002 | 0.0002 | 0.0002 | 0.0002 |

One tailed "outside" area. Values are 0.5 - Table I.

| Tbl.5 | Cumulative Distribution Function $2[1 - \Phi(z)] = \frac{2}{\sqrt{2\pi}z} \int_0^\infty e^{-\frac{1}{2}t^2} dt$ rg ∞ |        |        |        |        |        |        |        |        |        |
|-------|----------------------------------------------------------------------------------------------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| z     | 0.00                                                                                                                 | 0.01   | 0.02   | 0.03   | 0.04   | 0.05   | 0.06   | 0.07   | 0.08   | 0.09   |
| 0.00  | 1.0000                                                                                                               | 0.9920 | 0.9840 | 0.9761 | 0.9681 | 0.9601 | 0.9522 | 0.9442 | 0.9362 | 0.9283 |
| 0.10  | 0.9203                                                                                                               | 0.9124 | 0.9045 | 0.8966 | 0.8887 | 0.8808 | 0.8729 | 0.8650 | 0.8572 | 0.8493 |
| 0.20  | 0.8415                                                                                                               | 0.8337 | 0.8259 | 0.8181 | 0.8103 | 0.8026 | 0.7949 | 0.7872 | 0.7795 | 0.7718 |
| 0.30  | 0.7642                                                                                                               | 0.7566 | 0.7490 | 0.7414 | 0.7339 | 0.7263 | 0.7188 | 0.7114 | 0.7039 | 0.6965 |
| 0.40  | 0.6892                                                                                                               | 0.6818 | 0.6745 | 0.6672 | 0.6599 | 0.6527 | 0.6455 | 0.6384 | 0.6312 | 0.6241 |
| 0.50  | 0.6171                                                                                                               | 0.6101 | 0.6031 | 0.5961 | 0.5892 | 0.5823 | 0.5755 | 0.5687 | 0.5619 | 0.5552 |
| 0.60  | 0.5485                                                                                                               | 0.5419 | 0.5353 | 0.5287 | 0.5222 | 0.5157 | 0.5093 | 0.5029 | 0.4965 | 0.4902 |
| 0.70  | 0.4839                                                                                                               | 0.4777 | 0.4715 | 0.4654 | 0.4593 | 0.4533 | 0.4473 | 0.4413 | 0.4354 | 0.4295 |
| 0.80  | 0.4237                                                                                                               | 0.4179 | 0.4122 | 0.4065 | 0.4009 | 0.3953 | 0.3898 | 0.3843 | 0.3789 | 0.3735 |
| 0.90  | 0.3681                                                                                                               | 0.3628 | 0.3576 | 0.3524 | 0.3472 | 0.3421 | 0.3371 | 0.3320 | 0.3271 | 0.3222 |
| 1.00  | 0.3173                                                                                                               | 0.3125 | 0.3077 | 0.3030 | 0.2983 | 0.2937 | 0.2891 | 0.2846 | 0.2801 | 0.2757 |
| 1.10  | 0.2713                                                                                                               | 0.2670 | 0.2627 | 0.2585 | 0.2543 | 0.2501 | 0.2460 | 0.2420 | 0.2380 | 0.2340 |
| 1.20  | 0.2301                                                                                                               | 0.2263 | 0.2225 | 0.2187 | 0.2150 | 0.2113 | 0.2077 | 0.2041 | 0.2005 | 0.1971 |
| 1.30  | 0.1936                                                                                                               | 0.1902 | 0.1868 | 0.1835 | 0.1802 | 0.1770 | 0.1738 | 0.1707 | 0.1676 | 0.1645 |
| 1.40  | 0.1615                                                                                                               | 0.1585 | 0.1556 | 0.1527 | 0.1499 | 0.1471 | 0.1443 | 0.1416 | 0.1389 | 0.1362 |
| 1.50  | 0.1336                                                                                                               | 0.1310 | 0.1285 | 0.1260 | 0.1236 | 0.1211 | 0.1188 | 0.1164 | 0.1141 | 0.1118 |
| 1.60  | 0.1096                                                                                                               | 0.1074 | 0.1052 | 0.1031 | 0.1010 | 0.0989 | 0.0969 | 0.0949 | 0.0930 | 0.0910 |
| 1.70  | 0.0891                                                                                                               | 0.0873 | 0.0854 | 0.0836 | 0.0819 | 0.0801 | 0.0784 | 0.0767 | 0.0751 | 0.0735 |
| 1.80  | 0.0719                                                                                                               | 0.0703 | 0.0688 | 0.0672 | 0.0658 | 0.0643 | 0.0629 | 0.0615 | 0.0601 | 0.0588 |
| 1.90  | 0.0574                                                                                                               | 0.0561 | 0.0549 | 0.0536 | 0.0524 | 0.0512 | 0.0500 | 0.0488 | 0.0477 | 0.0466 |
| 2.00  | 0.0455                                                                                                               | 0.0444 | 0.0434 | 0.0424 | 0.0414 | 0.0404 | 0.0394 | 0.0385 | 0.0375 | 0.0366 |
| 2.10  | 0.0357                                                                                                               | 0.0349 | 0.0340 | 0.0332 | 0.0324 | 0.0316 | 0.0308 | 0.0300 | 0.0293 | 0.0285 |
| 2.20  | 0.0278                                                                                                               | 0.0271 | 0.0264 | 0.0257 | 0.0251 | 0.0244 | 0.0238 | 0.0232 | 0.0226 | 0.0220 |
| 2.30  | 0.0214                                                                                                               | 0.0209 | 0.0203 | 0.0198 | 0.0193 | 0.0188 | 0.0183 | 0.0178 | 0.0173 | 0.0168 |
| 2.40  | 0.0164                                                                                                               | 0.0160 | 0.0155 | 0.0151 | 0.0147 | 0.0143 | 0.0139 | 0.0135 | 0.0131 | 0.0128 |
| 2.50  | 0.0124                                                                                                               | 0.0121 | 0.0117 | 0.0114 | 0.0111 | 0.0108 | 0.0105 | 0.0102 | 0.0099 | 0.0096 |
| 2.60  | 0.0093                                                                                                               | 0.0091 | 0.0088 | 0.0085 | 0.0083 | 0.0080 | 0.0078 | 0.0076 | 0.0074 | 0.0071 |
| 2.70  | 0.0069                                                                                                               | 0.0067 | 0.0065 | 0.0063 | 0.0061 | 0.0060 | 0.0058 | 0.0056 | 0.0054 | 0.0053 |
| 2.80  | 0.0051                                                                                                               | 0.0050 | 0.0048 | 0.0047 | 0.0045 | 0.0044 | 0.0042 | 0.0041 | 0.0040 | 0.0039 |
| 2.90  | 0.0037                                                                                                               | 0.0036 | 0.0035 | 0.0034 | 0.0033 | 0.0032 | 0.0031 | 0.0030 | 0.0029 | 0.0028 |
| 3.00  | 0.0027                                                                                                               | 0.0026 | 0.0025 | 0.0024 | 0.0024 | 0.0023 | 0.0022 | 0.0021 | 0.0021 | 0.0020 |
| 3.10  | 0.0019                                                                                                               | 0.0019 | 0.0018 | 0.0017 | 0.0017 | 0.0016 | 0.0016 | 0.0015 | 0.0015 | 0.0014 |
| 3.20  | 0.0014                                                                                                               | 0.0013 | 0.0013 | 0.0012 | 0.0012 | 0.0012 | 0.0011 | 0.0011 | 0.0010 | 0.0010 |
| 3.30  | 0.0010                                                                                                               | 0.0009 | 0.0009 | 0.0009 | 0.0008 | 0.0008 | 0.0008 | 0.0008 | 0.0007 | 0.0007 |
| 3.40  | 0.0007                                                                                                               | 0.0006 | 0.0006 | 0.0006 | 0.0006 | 0.0006 | 0.0005 | 0.0005 | 0.0005 | 0.0005 |
| 3.50  | 0.0005                                                                                                               | 0.0004 | 0.0004 | 0.0004 | 0.0004 | 0.0004 | 0.0004 | 0.0004 | 0.0003 | 0.0003 |

Two tailed "outside" area. Values are the complements of Table 3

| Tbl.6       | Inverse normal cumulative distribution function. Table of $z$ <span style="float: right;"><math>rg \infty</math></span> |        |        |        |        |        |        |        |        |        |
|-------------|-------------------------------------------------------------------------------------------------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| $\Phi$      | 0.00                                                                                                                    | 0.01   | 0.02   | 0.03   | 0.04   | 0.05   | 0.06   | 0.07   | 0.08   | 0.09   |
| <b>0.50</b> | 0.0000                                                                                                                  | 0.0251 | 0.0502 | 0.0753 | 0.1004 | 0.1257 | 0.1510 | 0.1764 | 0.2019 | 0.2275 |
| <b>0.60</b> | 0.2533                                                                                                                  | 0.2793 | 0.3055 | 0.3319 | 0.3585 | 0.3853 | 0.4125 | 0.4399 | 0.4677 | 0.4959 |
| <b>0.70</b> | 0.5244                                                                                                                  | 0.5534 | 0.5828 | 0.6128 | 0.6433 | 0.6745 | 0.7063 | 0.7388 | 0.7722 | 0.8064 |
| $\Phi$      | 0.000                                                                                                                   | 0.001  | 0.002  | 0.003  | 0.004  | 0.005  | 0.006  | 0.007  | 0.008  | 0.009  |
| <b>0.75</b> | 0.6745                                                                                                                  | 0.6776 | 0.6808 | 0.6840 | 0.6871 | 0.6903 | 0.6935 | 0.6967 | 0.6999 | 0.7031 |
| <b>0.76</b> | 0.7063                                                                                                                  | 0.7095 | 0.7128 | 0.7160 | 0.7192 | 0.7225 | 0.7257 | 0.7290 | 0.7323 | 0.7356 |
| <b>0.77</b> | 0.7388                                                                                                                  | 0.7421 | 0.7454 | 0.7488 | 0.7521 | 0.7554 | 0.7588 | 0.7621 | 0.7655 | 0.7688 |
| <b>0.78</b> | 0.7722                                                                                                                  | 0.7756 | 0.7790 | 0.7824 | 0.7858 | 0.7892 | 0.7926 | 0.7961 | 0.7995 | 0.8030 |
| <b>0.79</b> | 0.8064                                                                                                                  | 0.8099 | 0.8134 | 0.8169 | 0.8204 | 0.8239 | 0.8274 | 0.8310 | 0.8345 | 0.8381 |
| <b>0.80</b> | 0.8416                                                                                                                  | 0.8452 | 0.8488 | 0.8524 | 0.8560 | 0.8596 | 0.8633 | 0.8669 | 0.8705 | 0.8742 |
| <b>0.81</b> | 0.8779                                                                                                                  | 0.8816 | 0.8853 | 0.8890 | 0.8927 | 0.8965 | 0.9002 | 0.9040 | 0.9078 | 0.9116 |
| <b>0.82</b> | 0.9154                                                                                                                  | 0.9192 | 0.9230 | 0.9269 | 0.9307 | 0.9346 | 0.9385 | 0.9424 | 0.9463 | 0.9502 |
| <b>0.83</b> | 0.9542                                                                                                                  | 0.9581 | 0.9621 | 0.9661 | 0.9701 | 0.9741 | 0.9782 | 0.9822 | 0.9863 | 0.9904 |
| <b>0.84</b> | 0.9945                                                                                                                  | 0.9986 | 1.0027 | 1.0069 | 1.0110 | 1.0152 | 1.0194 | 1.0237 | 1.0279 | 1.0322 |
| <b>0.85</b> | 1.0364                                                                                                                  | 1.0407 | 1.0450 | 1.0494 | 1.0537 | 1.0581 | 1.0625 | 1.0669 | 1.0714 | 1.0758 |
| <b>0.86</b> | 1.0803                                                                                                                  | 1.0848 | 1.0893 | 1.0939 | 1.0985 | 1.1031 | 1.1077 | 1.1123 | 1.1170 | 1.1217 |
| <b>0.87</b> | 1.1264                                                                                                                  | 1.1311 | 1.1359 | 1.1407 | 1.1455 | 1.1503 | 1.1552 | 1.1601 | 1.1650 | 1.1700 |
| <b>0.88</b> | 1.1750                                                                                                                  | 1.1800 | 1.1850 | 1.1901 | 1.1952 | 1.2004 | 1.2055 | 1.2107 | 1.2160 | 1.2212 |
| <b>0.89</b> | 1.2265                                                                                                                  | 1.2319 | 1.2372 | 1.2426 | 1.2481 | 1.2536 | 1.2591 | 1.2646 | 1.2702 | 1.2759 |
| <b>0.90</b> | 1.2816                                                                                                                  | 1.2873 | 1.2930 | 1.2988 | 1.3047 | 1.3106 | 1.3165 | 1.3225 | 1.3285 | 1.3346 |
| <b>0.91</b> | 1.3408                                                                                                                  | 1.3469 | 1.3532 | 1.3595 | 1.3658 | 1.3722 | 1.3787 | 1.3852 | 1.3917 | 1.3984 |
| <b>0.92</b> | 1.4051                                                                                                                  | 1.4118 | 1.4187 | 1.4255 | 1.4325 | 1.4395 | 1.4466 | 1.4538 | 1.4611 | 1.4684 |
| <b>0.93</b> | 1.4758                                                                                                                  | 1.4833 | 1.4909 | 1.4985 | 1.5063 | 1.5141 | 1.5220 | 1.5301 | 1.5382 | 1.5464 |
| <b>0.94</b> | 1.5548                                                                                                                  | 1.5632 | 1.5718 | 1.5805 | 1.5893 | 1.5982 | 1.6072 | 1.6164 | 1.6258 | 1.6352 |
| <b>0.95</b> | 1.6449                                                                                                                  | 1.6546 | 1.6646 | 1.6747 | 1.6849 | 1.6954 | 1.7060 | 1.7169 | 1.7279 | 1.7392 |
| <b>0.96</b> | 1.7507                                                                                                                  | 1.7624 | 1.7744 | 1.7866 | 1.7991 | 1.8119 | 1.8250 | 1.8384 | 1.8522 | 1.8663 |
| <b>0.97</b> | 1.8808                                                                                                                  | 1.8957 | 1.9110 | 1.9268 | 1.9431 | 1.9600 | 1.9774 | 1.9954 | 2.0141 | 2.0335 |
| <b>0.98</b> | 2.0537                                                                                                                  | 2.0749 | 2.0969 | 2.1201 | 2.1444 | 2.1701 | 2.1973 | 2.2262 | 2.2571 | 2.2904 |
| <b>0.99</b> | 2.3263                                                                                                                  | 2.3656 | 2.4089 | 2.4573 | 2.5121 | 2.5758 | 2.6521 | 2.7478 | 2.8782 | 3.0902 |

### Significance Testing

|                   |        |        |        |        |        |        |        |        |        |
|-------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| one-tailed $Q$    | 0.01%  | 0.025% | 0.05%  | 0.1%   | 0.25%  | 0.5%   | 1%     | 2.5%   | 5%     |
| one-tailed $\Phi$ | 0.9999 | 0.9998 | 0.9995 | 0.999  | 0.9975 | 0.995  | 0.99   | 0.975  | 0.95   |
| two-tailed $Q$    | 0.02%  | 0.05%  | 0.1%   | 0.2%   | 0.5%   | 1%     | 2%     | 5%     | 10%    |
| two-tailed $\Phi$ | 0.9998 | 0.9995 | 0.999  | 0.998  | 0.995  | 0.99   | 0.98   | 0.95   | 0.90   |
| $z =$             | 3.7190 | 3.4808 | 3.2905 | 3.0902 | 2.8070 | 2.5758 | 2.3263 | 1.9600 | 1.6449 |

| Tbl.7 | Chi Squared Distribution Table k values |        |        |        |        |       |       |       |       |       | p = P ( X ≤ κ ) |       |       | rg ∞ |
|-------|-----------------------------------------|--------|--------|--------|--------|-------|-------|-------|-------|-------|-----------------|-------|-------|------|
| v\p   | 0.995                                   | 0.990  | 0.975  | 0.950  | 0.900  | 0.750 | 0.500 | 0.250 | 0.100 | 0.050 | 0.025           | 0.010 | 0.005 |      |
| 1     | 7.88                                    | 6.63   | 5.02   | 3.84   | 2.71   | 1.32  | 0.45  | 0.10  | 0.02  | 0.00  | 0.00            | 0.00  | 0.00  |      |
| 2     | 10.60                                   | 9.21   | 7.38   | 5.99   | 4.61   | 2.77  | 1.39  | 0.58  | 0.21  | 0.10  | 0.05            | 0.02  | 0.01  |      |
| 3     | 12.84                                   | 11.34  | 9.35   | 7.81   | 6.25   | 4.11  | 2.37  | 1.21  | 0.58  | 0.35  | 0.22            | 0.11  | 0.07  |      |
| 4     | 14.86                                   | 13.28  | 11.14  | 9.49   | 7.78   | 5.39  | 3.36  | 1.92  | 1.06  | 0.71  | 0.48            | 0.30  | 0.21  |      |
| 5     | 16.75                                   | 15.09  | 12.83  | 11.07  | 9.24   | 6.63  | 4.35  | 2.67  | 1.61  | 1.15  | 0.83            | 0.55  | 0.41  |      |
| 6     | 18.55                                   | 16.81  | 14.45  | 12.59  | 10.64  | 7.84  | 5.35  | 3.45  | 2.20  | 1.64  | 1.24            | 0.87  | 0.68  |      |
| 7     | 20.28                                   | 18.48  | 16.01  | 14.07  | 12.02  | 9.04  | 6.35  | 4.25  | 2.83  | 2.17  | 1.69            | 1.24  | 0.99  |      |
| 8     | 21.95                                   | 20.09  | 17.53  | 15.51  | 13.36  | 10.22 | 7.34  | 5.07  | 3.49  | 2.73  | 2.18            | 1.65  | 1.34  |      |
| 9     | 23.59                                   | 21.67  | 19.02  | 16.92  | 14.68  | 11.39 | 8.34  | 5.90  | 4.17  | 3.33  | 2.70            | 2.09  | 1.73  |      |
| 10    | 25.19                                   | 23.21  | 20.48  | 18.31  | 15.99  | 12.55 | 9.34  | 6.74  | 4.87  | 3.94  | 3.25            | 2.56  | 2.16  |      |
| 11    | 26.76                                   | 24.72  | 21.92  | 19.68  | 17.28  | 13.70 | 10.34 | 7.58  | 5.58  | 4.57  | 3.82            | 3.05  | 2.60  |      |
| 12    | 28.30                                   | 26.22  | 23.34  | 21.03  | 18.55  | 14.85 | 11.34 | 8.44  | 6.30  | 5.23  | 4.40            | 3.57  | 3.07  |      |
| 13    | 29.82                                   | 27.69  | 24.74  | 22.36  | 19.81  | 15.98 | 12.34 | 9.30  | 7.04  | 5.89  | 5.01            | 4.11  | 3.57  |      |
| 14    | 31.32                                   | 29.14  | 26.12  | 23.68  | 21.06  | 17.12 | 13.34 | 10.17 | 7.79  | 6.57  | 5.63            | 4.66  | 4.07  |      |
| 15    | 32.80                                   | 30.58  | 27.49  | 25.00  | 22.31  | 18.25 | 14.34 | 11.04 | 8.55  | 7.26  | 6.26            | 5.23  | 4.60  |      |
| 16    | 34.27                                   | 32.00  | 28.85  | 26.30  | 23.54  | 19.37 | 15.34 | 11.91 | 9.31  | 7.96  | 6.91            | 5.81  | 5.14  |      |
| 17    | 35.72                                   | 33.41  | 30.19  | 27.59  | 24.77  | 20.49 | 16.34 | 12.79 | 10.09 | 8.67  | 7.56            | 6.41  | 5.70  |      |
| 18    | 37.16                                   | 34.81  | 31.53  | 28.87  | 25.99  | 21.60 | 17.34 | 13.68 | 10.86 | 9.39  | 8.23            | 7.01  | 6.26  |      |
| 19    | 38.58                                   | 36.19  | 32.85  | 30.14  | 27.20  | 22.72 | 18.34 | 14.56 | 11.65 | 10.12 | 8.91            | 7.63  | 6.84  |      |
| 20    | 40.00                                   | 37.57  | 34.17  | 31.41  | 28.41  | 23.83 | 19.34 | 15.45 | 12.44 | 10.85 | 9.59            | 8.26  | 7.43  |      |
| 21    | 41.40                                   | 38.93  | 35.48  | 32.67  | 29.62  | 24.93 | 20.34 | 16.34 | 13.24 | 11.59 | 10.28           | 8.90  | 8.03  |      |
| 22    | 42.80                                   | 40.29  | 36.78  | 33.92  | 30.81  | 26.04 | 21.34 | 17.24 | 14.04 | 12.34 | 10.98           | 9.54  | 8.64  |      |
| 23    | 44.18                                   | 41.64  | 38.08  | 35.17  | 32.01  | 27.14 | 22.34 | 18.14 | 14.85 | 13.09 | 11.69           | 10.20 | 9.26  |      |
| 24    | 45.56                                   | 42.98  | 39.36  | 36.42  | 33.20  | 28.24 | 23.34 | 19.04 | 15.66 | 13.85 | 12.40           | 10.86 | 9.89  |      |
| 25    | 46.93                                   | 44.31  | 40.65  | 37.65  | 34.38  | 29.34 | 24.34 | 19.94 | 16.47 | 14.61 | 13.12           | 11.52 | 10.52 |      |
| 26    | 48.29                                   | 45.64  | 41.92  | 38.89  | 35.56  | 30.43 | 25.34 | 20.84 | 17.29 | 15.38 | 13.84           | 12.20 | 11.16 |      |
| 27    | 49.64                                   | 46.96  | 43.19  | 40.11  | 36.74  | 31.53 | 26.34 | 21.75 | 18.11 | 16.15 | 14.57           | 12.88 | 11.81 |      |
| 28    | 50.99                                   | 48.28  | 44.46  | 41.34  | 37.92  | 32.62 | 27.34 | 22.66 | 18.94 | 16.93 | 15.31           | 13.56 | 12.46 |      |
| 29    | 52.34                                   | 49.59  | 45.72  | 42.56  | 39.09  | 33.71 | 28.34 | 23.57 | 19.77 | 17.71 | 16.05           | 14.26 | 13.12 |      |
| 30    | 53.67                                   | 50.89  | 46.98  | 43.77  | 40.26  | 34.80 | 29.34 | 24.48 | 20.60 | 18.49 | 16.79           | 14.95 | 13.79 |      |
| 40    | 66.77                                   | 63.69  | 59.34  | 55.76  | 51.81  | 45.62 | 39.34 | 33.66 | 29.05 | 26.51 | 24.43           | 22.16 | 20.71 |      |
| 50    | 79.49                                   | 76.15  | 71.42  | 67.50  | 63.17  | 56.33 | 49.33 | 42.94 | 37.69 | 34.76 | 32.36           | 29.71 | 27.99 |      |
| 60    | 91.95                                   | 88.38  | 83.30  | 79.08  | 74.40  | 66.98 | 59.33 | 52.29 | 46.46 | 43.19 | 40.48           | 37.48 | 35.53 |      |
| 70    | 104.21                                  | 100.43 | 95.02  | 90.53  | 85.53  | 77.58 | 69.33 | 61.70 | 55.33 | 51.74 | 48.76           | 45.44 | 43.28 |      |
| 80    | 116.32                                  | 112.33 | 106.63 | 101.88 | 96.58  | 88.13 | 79.33 | 71.14 | 64.28 | 60.39 | 57.15           | 53.54 | 51.17 |      |
| 90    | 128.30                                  | 124.12 | 118.14 | 113.15 | 107.57 | 98.65 | 89.33 | 80.62 | 73.29 | 69.13 | 65.65           | 61.75 | 59.20 |      |

$p$ (probability) is the area under the curve from 0 up to  $\kappa$  (table values) (sometimes denoted  $c$ )

| Tbl.8                  | Poisson Tables $P(X = r) = \lambda^r e^{-\lambda} / r!$ |       |       |       |       |       |       |       |       |       |       |       |       |       |       |  | rg | ∞ |
|------------------------|---------------------------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--|----|---|
| $\lambda \backslash r$ | 0                                                       | 1     | 2     | 3     | 4     | 5     | 6     | 7     | 8     | 9     | 10    | 12    | 14    | 16    | 18    |  |    |   |
| 0.02                   | 0.980                                                   | 0.020 |       |       |       |       |       |       |       |       |       |       |       |       |       |  |    |   |
| 0.04                   | 0.961                                                   | 0.038 |       |       |       |       |       |       |       |       |       |       |       |       |       |  |    |   |
| 0.06                   | 0.942                                                   | 0.057 | 0.002 |       |       |       |       |       |       |       |       |       |       |       |       |  |    |   |
| 0.08                   | 0.923                                                   | 0.074 | 0.003 |       |       |       |       |       |       |       |       |       |       |       |       |  |    |   |
| 0.10                   | 0.905                                                   | 0.090 | 0.005 |       |       |       |       |       |       |       |       |       |       |       |       |  |    |   |
| 0.15                   | 0.861                                                   | 0.129 | 0.010 |       |       |       |       |       |       |       |       |       |       |       |       |  |    |   |
| 0.20                   | 0.819                                                   | 0.164 | 0.016 | 0.001 |       |       |       |       |       |       |       |       |       |       |       |  |    |   |
| 0.25                   | 0.779                                                   | 0.195 | 0.024 | 0.002 |       |       |       |       |       |       |       |       |       |       |       |  |    |   |
| 0.30                   | 0.741                                                   | 0.222 | 0.033 | 0.003 |       |       |       |       |       |       |       |       |       |       |       |  |    |   |
| 0.35                   | 0.705                                                   | 0.247 | 0.043 | 0.005 |       |       |       |       |       |       |       |       |       |       |       |  |    |   |
| 0.4                    | 0.670                                                   | 0.268 | 0.054 | 0.007 |       |       |       |       |       |       |       |       |       |       |       |  |    |   |
| 0.6                    | 0.549                                                   | 0.329 | 0.099 | 0.020 | 0.003 |       |       |       |       |       |       |       |       |       |       |  |    |   |
| 0.8                    | 0.449                                                   | 0.359 | 0.144 | 0.038 | 0.008 | 0.001 |       |       |       |       |       |       |       |       |       |  |    |   |
| 1.0                    | 0.368                                                   | 0.368 | 0.184 | 0.061 | 0.015 | 0.003 |       |       |       |       |       |       |       |       |       |  |    |   |
| 1.2                    | 0.301                                                   | 0.361 | 0.217 | 0.087 | 0.026 | 0.006 | 0.001 |       |       |       |       |       |       |       |       |  |    |   |
| 1.4                    | 0.247                                                   | 0.345 | 0.242 | 0.113 | 0.039 | 0.011 | 0.003 |       |       |       |       |       |       |       |       |  |    |   |
| 1.6                    | 0.202                                                   | 0.323 | 0.258 | 0.138 | 0.055 | 0.018 | 0.005 | 0.001 |       |       |       |       |       |       |       |  |    |   |
| 1.8                    | 0.165                                                   | 0.298 | 0.268 | 0.161 | 0.072 | 0.026 | 0.008 | 0.002 |       |       |       |       |       |       |       |  |    |   |
| 2.0                    | 0.135                                                   | 0.271 | 0.271 | 0.180 | 0.090 | 0.036 | 0.012 | 0.003 |       |       |       |       |       |       |       |  |    |   |
| 2.2                    | 0.111                                                   | 0.244 | 0.268 | 0.197 | 0.108 | 0.048 | 0.017 | 0.005 | 0.002 |       |       |       |       |       |       |  |    |   |
| 2.4                    | 0.091                                                   | 0.218 | 0.261 | 0.209 | 0.125 | 0.060 | 0.024 | 0.008 | 0.002 |       |       |       |       |       |       |  |    |   |
| 2.6                    | 0.074                                                   | 0.193 | 0.251 | 0.218 | 0.141 | 0.074 | 0.032 | 0.012 | 0.004 | 0.001 |       |       |       |       |       |  |    |   |
| 2.8                    | 0.061                                                   | 0.170 | 0.238 | 0.222 | 0.156 | 0.087 | 0.041 | 0.016 | 0.006 | 0.002 |       |       |       |       |       |  |    |   |
| 3.0                    | 0.050                                                   | 0.149 | 0.224 | 0.224 | 0.168 | 0.101 | 0.050 | 0.022 | 0.008 | 0.003 |       |       |       |       |       |  |    |   |
| 3.5                    | 0.030                                                   | 0.106 | 0.185 | 0.216 | 0.189 | 0.132 | 0.077 | 0.039 | 0.017 | 0.007 | 0.002 |       |       |       |       |  |    |   |
| 4.0                    | 0.018                                                   | 0.073 | 0.147 | 0.195 | 0.195 | 0.156 | 0.104 | 0.060 | 0.030 | 0.013 | 0.005 |       |       |       |       |  |    |   |
| 4.5                    | 0.011                                                   | 0.050 | 0.112 | 0.169 | 0.190 | 0.171 | 0.128 | 0.082 | 0.046 | 0.023 | 0.010 | 0.002 |       |       |       |  |    |   |
| 5.0                    | 0.007                                                   | 0.034 | 0.084 | 0.140 | 0.175 | 0.175 | 0.146 | 0.104 | 0.065 | 0.036 | 0.018 | 0.003 |       |       |       |  |    |   |
| 5.5                    | 0.004                                                   | 0.022 | 0.062 | 0.113 | 0.156 | 0.171 | 0.157 | 0.123 | 0.085 | 0.052 | 0.029 | 0.007 | 0.001 |       |       |  |    |   |
| 6.0                    | 0.002                                                   | 0.015 | 0.045 | 0.089 | 0.134 | 0.161 | 0.161 | 0.138 | 0.103 | 0.069 | 0.041 | 0.011 | 0.002 |       |       |  |    |   |
| 6.5                    | 0.002                                                   | 0.010 | 0.032 | 0.069 | 0.112 | 0.145 | 0.157 | 0.146 | 0.119 | 0.086 | 0.056 | 0.018 | 0.004 |       |       |  |    |   |
| 7.0                    |                                                         | 0.006 | 0.022 | 0.052 | 0.091 | 0.128 | 0.149 | 0.149 | 0.130 | 0.101 | 0.071 | 0.026 | 0.007 | 0.001 |       |  |    |   |
| 8.0                    |                                                         | 0.003 | 0.011 | 0.029 | 0.057 | 0.092 | 0.122 | 0.140 | 0.140 | 0.124 | 0.099 | 0.048 | 0.017 | 0.005 |       |  |    |   |
| 9.0                    |                                                         | 0.001 | 0.005 | 0.015 | 0.034 | 0.061 | 0.091 | 0.117 | 0.132 | 0.132 | 0.119 | 0.073 | 0.032 | 0.011 | 0.003 |  |    |   |
| 10.0                   |                                                         |       | 0.002 | 0.008 | 0.019 | 0.038 | 0.063 | 0.090 | 0.113 | 0.125 | 0.125 | 0.095 | 0.052 | 0.022 | 0.007 |  |    |   |
| 20.0                   |                                                         |       |       |       |       |       |       | 0.001 | 0.003 | 0.006 | 0.018 | 0.039 | 0.065 | 0.084 |       |  |    |   |

Interpretation : If the mean arrival time at a service point is 3 / minute then the probability that exactly 4 people will arrive in the next minute is 0.1680. The highest probabilities occur at both 3 people (unsuprising) but also 2 people (perhaps more suprising).

| Tbl.9                  | Cumulative Poissor $P(X \leq r)$ where X follows Poisson Distribution parameter $\lambda$ . |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
|------------------------|---------------------------------------------------------------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| $\lambda \backslash r$ | 0                                                                                           | 1     | 2     | 3     | 4     | 5     | 6     | 7     | 8     | 9     | 10    | 12    | 14    | 16    | 18    |
| 0.02                   | 9.000                                                                                       | 1.000 |       |       |       |       |       |       |       |       |       |       |       |       |       |
| 0.04                   | 0.961                                                                                       | 0.999 |       |       |       |       |       |       |       |       |       |       |       |       |       |
| 0.06                   | 0.942                                                                                       | 0.998 |       |       |       |       |       |       |       |       |       |       |       |       |       |
| 0.08                   | 0.923                                                                                       | 0.997 | 1.000 |       |       |       |       |       |       |       |       |       |       |       |       |
| 0.10                   | 0.905                                                                                       | 0.995 | 1.000 |       |       |       |       |       |       |       |       |       |       |       |       |
| 0.15                   | 0.861                                                                                       | 0.990 | 0.999 |       |       |       |       |       |       |       |       |       |       |       |       |
| 0.20                   | 0.819                                                                                       | 0.982 | 0.999 | 1.000 |       |       |       |       |       |       |       |       |       |       |       |
| 0.25                   | 0.779                                                                                       | 0.974 | 0.998 | 1.000 |       |       |       |       |       |       |       |       |       |       |       |
| 0.30                   | 0.741                                                                                       | 0.963 | 0.996 | 1.000 |       |       |       |       |       |       |       |       |       |       |       |
| 0.35                   | 0.705                                                                                       | 0.951 | 0.994 | 1.000 |       |       |       |       |       |       |       |       |       |       |       |
| 0.4                    | 0.670                                                                                       | 0.938 | 0.992 | 0.999 | 1.000 |       |       |       |       |       |       |       |       |       |       |
| 0.6                    | 0.549                                                                                       | 0.878 | 0.977 | 0.997 | 1.000 |       |       |       |       |       |       |       |       |       |       |
| 0.8                    | 0.449                                                                                       | 0.809 | 0.953 | 0.991 | 0.999 |       |       |       |       |       |       |       |       |       |       |
| 1.0                    | 0.368                                                                                       | 0.736 | 0.920 | 0.981 | 0.996 | 0.999 | 1.000 |       |       |       |       |       |       |       |       |
| 1.2                    | 0.301                                                                                       | 0.663 | 0.879 | 0.966 | 0.992 | 0.998 | 1.000 |       |       |       |       |       |       |       |       |
| 1.4                    | 0.247                                                                                       | 0.592 | 0.833 | 0.946 | 0.986 | 0.997 | 0.999 | 1.000 |       |       |       |       |       |       |       |
| 1.6                    | 0.202                                                                                       | 0.525 | 0.783 | 0.921 | 0.976 | 0.994 | 0.999 | 1.000 |       |       |       |       |       |       |       |
| 1.8                    | 0.165                                                                                       | 0.463 | 0.731 | 0.891 | 0.964 | 0.990 | 0.997 | 0.999 | 1.000 |       |       |       |       |       |       |
| 2.0                    | 0.135                                                                                       | 0.406 | 0.677 | 0.857 | 0.947 | 0.983 | 0.995 | 0.999 | 1.000 |       |       |       |       |       |       |
| 2.2                    | 0.111                                                                                       | 0.355 | 0.623 | 0.819 | 0.928 | 0.975 | 0.993 | 0.998 | 1.000 | 1.000 |       |       |       |       |       |
| 2.4                    | 0.091                                                                                       | 0.308 | 0.570 | 0.779 | 0.904 | 0.964 | 0.988 | 0.997 | 0.999 | 1.000 |       |       |       |       |       |
| 2.6                    | 0.074                                                                                       | 0.267 | 0.518 | 0.736 | 0.877 | 0.951 | 0.983 | 0.995 | 0.999 | 1.000 | 1.000 |       |       |       |       |
| 2.8                    | 0.061                                                                                       | 0.231 | 0.469 | 0.692 | 0.848 | 0.935 | 0.976 | 0.992 | 0.998 | 0.999 | 1.000 |       |       |       |       |
| 3.0                    | 0.050                                                                                       | 0.199 | 0.423 | 0.647 | 0.815 | 0.916 | 0.966 | 0.988 | 0.996 | 0.999 | 1.000 |       |       |       |       |
| 3.5                    | 0.030                                                                                       | 0.136 | 0.321 | 0.537 | 0.725 | 0.858 | 0.935 | 0.973 | 0.990 | 0.997 | 0.999 | 1.000 |       |       |       |
| 4.0                    | 0.018                                                                                       | 0.092 | 0.238 | 0.433 | 0.629 | 0.785 | 0.889 | 0.949 | 0.979 | 0.992 | 0.997 | 1.000 |       |       |       |
| 4.5                    | 0.011                                                                                       | 0.061 | 0.174 | 0.342 | 0.532 | 0.703 | 0.831 | 0.913 | 0.960 | 0.983 | 0.993 | 0.999 | 1.000 |       |       |
| 5.0                    | 0.007                                                                                       | 0.040 | 0.125 | 0.265 | 0.440 | 0.616 | 0.762 | 0.867 | 0.932 | 0.968 | 0.986 | 0.998 | 1.000 |       |       |
| 5.5                    | 0.004                                                                                       | 0.027 | 0.088 | 0.202 | 0.358 | 0.529 | 0.686 | 0.809 | 0.894 | 0.946 | 0.975 | 0.996 | 0.999 | 1.000 |       |
| 6.0                    | 0.002                                                                                       | 0.017 | 0.062 | 0.151 | 0.285 | 0.446 | 0.606 | 0.744 | 0.847 | 0.916 | 0.957 | 0.991 | 0.999 | 1.000 |       |
| 6.5                    | 0.002                                                                                       | 0.011 | 0.043 | 0.112 | 0.224 | 0.369 | 0.527 | 0.673 | 0.792 | 0.877 | 0.933 | 0.984 | 0.997 | 1.000 | 1.000 |
| 7.0                    | 0.001                                                                                       | 0.007 | 0.030 | 0.082 | 0.173 | 0.301 | 0.450 | 0.599 | 0.729 | 0.830 | 0.901 | 0.973 | 0.994 | 0.999 | 1.000 |
| 8.0                    |                                                                                             | 0.003 | 0.014 | 0.042 | 0.100 | 0.191 | 0.313 | 0.453 | 0.593 | 0.717 | 0.816 | 0.936 | 0.983 | 0.996 | 0.999 |
| 9.0                    |                                                                                             | 0.001 | 0.006 | 0.021 | 0.055 | 0.116 | 0.207 | 0.324 | 0.456 | 0.587 | 0.706 | 0.876 | 0.959 | 0.989 | 0.998 |
| 10.0                   |                                                                                             |       | 0.003 | 0.010 | 0.029 | 0.067 | 0.130 | 0.220 | 0.333 | 0.458 | 0.583 | 0.792 | 0.917 | 0.973 | 0.993 |
| 20.0                   |                                                                                             |       |       |       |       |       | 0.001 | 0.002 | 0.005 | 0.011 | 0.039 | 0.105 | 0.221 | 0.381 |       |

| Tbl.10         |        |        |        |        |                   |        |        |             |       |       |
|----------------|--------|--------|--------|--------|-------------------|--------|--------|-------------|-------|-------|
| T Distribution |        |        |        |        | $p = P(X \leq t)$ |        |        | $rg \infty$ |       |       |
| $v/p$          | 0.9998 | 0.9995 | 0.999  | 0.9975 | 0.995             | 0.990  | 0.975  | 0.950       | 0.900 | 0.800 |
| 1              | 1591.5 | 636.62 | 318.31 | 127.32 | 63.657            | 31.821 | 12.706 | 6.314       | 3.078 | 1.376 |
| 2              | 49.985 | 31.599 | 22.327 | 14.089 | 9.925             | 6.965  | 4.303  | 2.920       | 1.886 | 1.061 |
| 3              | 17.598 | 12.924 | 10.215 | 7.453  | 5.841             | 4.541  | 3.182  | 2.353       | 1.638 | 0.978 |
| 4              | 10.915 | 8.610  | 7.173  | 5.598  | 4.604             | 3.747  | 2.776  | 2.132       | 1.533 | 0.941 |
| 5              | 8.363  | 6.869  | 5.893  | 4.773  | 4.032             | 3.365  | 2.571  | 2.015       | 1.476 | 0.920 |
| 6              | 7.074  | 5.959  | 5.208  | 4.317  | 3.707             | 3.143  | 2.447  | 1.943       | 1.440 | 0.906 |
| 7              | 6.311  | 5.408  | 4.785  | 4.029  | 3.499             | 2.998  | 2.365  | 1.895       | 1.415 | 0.896 |
| 8              | 5.811  | 5.041  | 4.501  | 3.833  | 3.355             | 2.896  | 2.306  | 1.860       | 1.397 | 0.889 |
| 9              | 5.461  | 4.781  | 4.297  | 3.690  | 3.250             | 2.821  | 2.262  | 1.833       | 1.383 | 0.883 |
| 10             | 5.202  | 4.587  | 4.144  | 3.581  | 3.169             | 2.764  | 2.228  | 1.812       | 1.372 | 0.879 |
| 11             | 5.004  | 4.437  | 4.025  | 3.497  | 3.106             | 2.718  | 2.201  | 1.796       | 1.363 | 0.876 |
| 12             | 4.847  | 4.318  | 3.930  | 3.428  | 3.055             | 2.681  | 2.179  | 1.782       | 1.356 | 0.873 |
| 13             | 4.721  | 4.221  | 3.852  | 3.372  | 3.012             | 2.650  | 2.160  | 1.771       | 1.350 | 0.870 |
| 14             | 4.616  | 4.140  | 3.787  | 3.326  | 2.977             | 2.624  | 2.145  | 1.761       | 1.345 | 0.868 |
| 15             | 4.528  | 4.073  | 3.733  | 3.286  | 2.947             | 2.602  | 2.131  | 1.753       | 1.341 | 0.866 |
| 16             | 4.454  | 4.015  | 3.686  | 3.252  | 2.921             | 2.583  | 2.120  | 1.746       | 1.337 | 0.865 |
| 17             | 4.390  | 3.965  | 3.646  | 3.222  | 2.898             | 2.567  | 2.110  | 1.740       | 1.333 | 0.863 |
| 18             | 4.334  | 3.922  | 3.610  | 3.197  | 2.878             | 2.552  | 2.101  | 1.734       | 1.330 | 0.862 |
| 19             | 4.285  | 3.883  | 3.579  | 3.174  | 2.861             | 2.539  | 2.093  | 1.729       | 1.328 | 0.861 |
| 20             | 4.241  | 3.850  | 3.552  | 3.153  | 2.845             | 2.528  | 2.086  | 1.725       | 1.325 | 0.860 |
| 21             | 4.203  | 3.819  | 3.527  | 3.135  | 2.831             | 2.518  | 2.080  | 1.721       | 1.323 | 0.859 |
| 22             | 4.168  | 3.792  | 3.505  | 3.119  | 2.819             | 2.508  | 2.074  | 1.717       | 1.321 | 0.858 |
| 23             | 4.137  | 3.768  | 3.485  | 3.104  | 2.807             | 2.500  | 2.069  | 1.714       | 1.319 | 0.858 |
| 24             | 4.109  | 3.745  | 3.467  | 3.091  | 2.797             | 2.492  | 2.064  | 1.711       | 1.318 | 0.857 |
| 25             | 4.083  | 3.725  | 3.450  | 3.078  | 2.787             | 2.485  | 2.060  | 1.708       | 1.316 | 0.856 |
| 26             | 4.060  | 3.707  | 3.435  | 3.067  | 2.779             | 2.479  | 2.056  | 1.706       | 1.315 | 0.856 |
| 27             | 4.038  | 3.690  | 3.421  | 3.057  | 2.771             | 2.473  | 2.052  | 1.703       | 1.314 | 0.855 |
| 28             | 4.018  | 3.674  | 3.408  | 3.047  | 2.763             | 2.467  | 2.048  | 1.701       | 1.313 | 0.855 |
| 29             | 4.000  | 3.659  | 3.396  | 3.038  | 2.756             | 2.462  | 2.045  | 1.699       | 1.311 | 0.854 |
| 30             | 3.983  | 3.646  | 3.385  | 3.030  | 2.750             | 2.457  | 2.042  | 1.697       | 1.310 | 0.854 |
| 40             | 3.864  | 3.551  | 3.307  | 2.971  | 2.704             | 2.423  | 2.021  | 1.684       | 1.303 | 0.851 |
| 50             | 3.795  | 3.496  | 3.261  | 2.937  | 2.678             | 2.403  | 2.009  | 1.676       | 1.299 | 0.849 |
| 60             | 3.750  | 3.460  | 3.232  | 2.915  | 2.660             | 2.390  | 2.000  | 1.671       | 1.296 | 0.848 |
| 80             | 3.696  | 3.416  | 3.195  | 2.887  | 2.639             | 2.374  | 1.990  | 1.664       | 1.292 | 0.846 |
| 120            | 3.642  | 3.373  | 3.160  | 2.860  | 2.617             | 2.358  | 1.980  | 1.658       | 1.289 | 0.845 |
| $\infty$       | 3.481  | 3.290  | 3.090  | 2.807  | 2.576             | 2.326  | 1.960  | 1.645       | 1.282 | 0.842 |

Compare these highlighted values with the significance testing highlighted values Table 6.

| Tbl.11 Table of Random Normal Deviates $\mu = 0 \sigma = 1$ |         |         |         |         |         |         |         | rg ∞    |
|-------------------------------------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|
| 0.0872                                                      | 0.8632  | 0.1685  | -0.7522 | 1.4242  | 0.3977  | -1.2193 | 0.9198  | -0.9978 |
| 0.8760                                                      | -0.4296 | 1.2587  | -0.2725 | 0.5872  | -0.3627 | -0.4658 | -0.6546 | -1.0739 |
| -0.1555                                                     | 1.3865  | 0.9808  | 0.8842  | -0.5184 | -0.5102 | -1.2615 | -1.1159 | -1.3875 |
| -0.5238                                                     | 0.6177  | -0.6386 | -0.3266 | 0.6147  | -1.6921 | -1.0366 | 0.4827  | -0.5360 |
| 0.9333                                                      | 0.8702  | 0.7765  | 1.3892  | -0.4782 | -0.7038 | -0.2256 | -0.6235 | -0.5029 |
| -1.0375                                                     | -0.1066 | 0.6896  | 2.2259  | -0.5724 | 1.1293  | 0.2556  | 0.8264  | 0.1595  |
| 0.4872                                                      | -0.3413 | 0.8153  | -0.5047 | -0.4327 | -0.0585 | -1.7029 | -0.7668 | -0.3151 |
| 0.0424                                                      | -1.5299 | -2.3218 | -1.8953 | -0.3610 | -1.1688 | 0.1415  | 0.7558  | 0.3683  |
| -0.4354                                                     | -0.5521 | 1.3751  | -0.3112 | -0.7371 | -1.3932 | -0.4964 | -0.2468 | 0.7604  |
| 0.2676                                                      | 0.7818  | 0.3755  | 1.4191  | 0.0737  | -0.3327 | 0.1539  | 1.1310  | 0.0297  |
| -1.5694                                                     | -0.6477 | -0.8974 | 1.1050  | 0.2899  | 2.1286  | 0.5948  | 0.6131  | 0.0063  |
| 1.1444                                                      | -1.5835 | -1.2483 | -0.6098 | -1.1540 | -0.7075 | -0.0525 | 1.3256  | 1.5488  |
| -1.7860                                                     | -1.3618 | -0.1806 | -0.1321 | -0.5371 | -1.0876 | -1.2167 | -1.1543 | 0.0291  |
| -0.2609                                                     | 0.3567  | 0.4111  | 0.2943  | 0.6132  | 1.5248  | 0.7319  | 1.1953  | 0.1898  |
| -0.2243                                                     | 0.7035  | 1.1759  | 0.7890  | -1.6421 | -0.5587 | -1.5121 | -0.7014 | 0.2463  |
| -0.4744                                                     | 1.1854  | 0.0568  | -1.2988 | 0.5947  | 0.6748  | -0.1877 | -0.8989 | -2.4817 |
| -0.2566                                                     | -0.5476 | -0.5264 | -1.7323 | -1.6356 | 0.1477  | 1.1651  | -0.8081 | 0.5228  |
| 0.7125                                                      | -0.1397 | 0.1195  | 0.1929  | -0.8596 | 1.1950  | 0.9125  | 1.2319  | -0.1270 |
| 1.5573                                                      | 0.5255  | 1.1114  | 0.9328  | 0.7845  | 0.5703  | 0.0277  | -1.9924 | -0.0157 |
| -1.0132                                                     | 1.0064  | -1.2682 | 0.2943  | 0.3614  | -0.1274 | -0.3632 | 0.1032  | -0.0144 |
| 0.0140                                                      | -0.5472 | 0.6108  | -0.4800 | 1.3690  | 1.3896  | -0.1865 | -0.5256 | 0.4985  |
| 1.7130                                                      | -0.3212 | 0.2739  | 0.4334  | -0.0528 | 0.4720  | 0.4150  | -0.5249 | 0.7985  |
| -0.4805                                                     | 0.7355  | -0.1578 | 0.7698  | -0.5746 | 0.2642  | -0.0212 | -0.8499 | -0.5836 |
| -1.9372                                                     | -1.4605 | -0.4873 | 2.1851  | 0.4318  | -0.9134 | -1.6061 | 1.5104  | 0.2594  |
| -0.5431                                                     | -0.1152 | 1.0299  | -0.5097 | -0.6876 | -2.1317 | -0.4116 | 2.3121  | -1.0051 |
| 0.3533                                                      | -1.7534 | -1.3364 | 1.4824  | 1.2008  | 0.6029  | 0.8061  | 1.5433  | -0.5360 |
| 0.7038                                                      | -1.4377 | 1.8302  | -1.1003 | -0.3091 | 0.4381  | -0.7463 | 1.2679  | -0.0532 |
| -1.7486                                                     | -0.4542 | -1.0377 | 0.2132  | -1.0176 | 0.3941  | -1.1047 | -0.2623 | 0.1146  |
| -0.2362                                                     | 0.3500  | 1.9298  | 1.0228  | 0.6299  | 1.2034  | -1.8697 | -0.8791 | 0.4976  |
| -0.2457                                                     | 0.5078  | -0.8521 | 0.7088  | 2.5590  | 0.6162  | -1.2509 | -1.1176 | 0.9011  |
| -0.2023                                                     | 0.4472  | 0.3895  | -0.2481 | -0.7379 | 1.0599  | 1.9281  | 0.4276  | -0.5814 |
| 0.5335                                                      | -0.4919 | 1.2731  | -0.1064 | 0.4794  | 0.5019  | 0.9204  | -1.9538 | 1.2895  |
| -0.3197                                                     | -1.6064 | 0.4987  | 0.7699  | 0.2456  | 1.2056  | -0.7187 | -2.6452 | 0.4517  |
| -0.1350                                                     | 1.3406  | -0.2225 | 0.3398  | -0.8908 | 0.7126  | 1.4138  | -0.3531 | -0.7262 |
| -0.4941                                                     | 1.3596  | -0.2588 | -0.2111 | -0.4506 | 1.4980  | 1.2838  | 1.1554  | 0.8627  |
| -1.8295                                                     | 0.7016  | -1.5195 | -0.5268 | 0.1715  | 1.1912  | 0.8167  | 0.3593  | -1.1471 |
| -0.1107                                                     | 0.0924  | -0.3252 | -0.0284 | 0.3344  | -1.4904 | 1.4243  | -0.7886 | -1.4409 |
| 0.0954                                                      | 0.6589  | -0.6350 | 0.2625  | 0.0762  | 1.0706  | 0.9851  | 1.7247  | -0.1123 |
| 0.1444                                                      | -0.2878 | 2.4999  | -1.1400 | -0.7363 | 0.0736  | 1.4773  | 0.8743  | -0.0864 |
| 0.3688                                                      | -0.4566 | -0.2231 | 0.3488  | 2.0646  | 1.1625  | -0.6030 | 0.0642  | 1.7832  |

TbI.12 Random Numbers

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|      |      |      |       |      |      |      |      |      |      |      |
|------|------|------|-------|------|------|------|------|------|------|------|
| 5568 | 0813 | 9599 | 0.975 | 0.95 | 8801 | 0529 | 0060 | 4049 | 6477 | 4634 |
| 1570 | 2557 | 3603 | 8781  | 7973 | 9575 | 4471 | 3283 | 0521 | 5984 | 1154 |
| 5392 | 9184 | 1587 | 9014  | 7268 | 8451 | 7862 | 5077 | 5683 | 9062 | 4321 |
| 0282 | 2355 | 1630 | 9829  | 7587 | 1785 | 3437 | 1136 | 8557 | 2139 | 3687 |
| 2784 | 4079 | 6617 | 9600  | 3494 | 7169 | 8351 | 7303 | 3814 | 8156 | 1827 |
| 2848 | 6085 | 0016 | 7649  | 5164 | 2931 | 7557 | 0680 | 6782 | 1311 | 5003 |
| 4236 | 5293 | 2612 | 5328  | 4591 | 1876 | 0309 | 2511 | 9500 | 0750 | 2046 |
| 0421 | 1509 | 0166 | 9972  | 4985 | 5984 | 8486 | 4816 | 3981 | 5635 | 6170 |
| 0697 | 3993 | 6510 | 4833  | 0972 | 3206 | 5709 | 3722 | 3271 | 4458 | 8572 |
| 7426 | 5641 | 5306 | 6562  | 3127 | 0360 | 4146 | 6075 | 1573 | 2914 | 7232 |
| 3117 | 2065 | 2957 | 9213  | 7695 | 4243 | 5186 | 5530 | 4552 | 8780 | 5138 |
| 7992 | 4354 | 9030 | 8777  | 8113 | 8334 | 0713 | 5966 | 3315 | 2931 | 4672 |
| 9737 | 9507 | 8963 | 9163  | 3384 | 3540 | 5132 | 5927 | 0139 | 8917 | 2702 |
| 6292 | 0501 | 6793 | 2469  | 8676 | 7831 | 7833 | 0214 | 7858 | 7046 | 2480 |
| 4298 | 3588 | 9412 | 7425  | 2791 | 4694 | 7662 | 3585 | 3867 | 6988 | 8489 |
| 5922 | 2767 | 4329 | 6191  | 1451 | 1288 | 9550 | 7976 | 1554 | 4763 | 3713 |
| 0019 | 0364 | 9448 | 7878  | 1799 | 4694 | 1530 | 2245 | 4507 | 8156 | 9677 |
| 7725 | 2356 | 4228 | 7794  | 9293 | 2972 | 1402 | 2226 | 9373 | 7008 | 7216 |
| 2247 | 7495 | 5486 | 0747  | 9966 | 1065 | 3017 | 1506 | 1978 | 4541 | 9212 |
| 7507 | 3723 | 8208 | 1989  | 3393 | 9290 | 1089 | 2540 | 2318 | 2979 | 7020 |
| 1680 | 2231 | 8846 | 4632  | 0498 | 5345 | 7071 | 2597 | 2268 | 0932 | 9297 |
| 1958 | 0382 | 9064 | 5418  | 7001 | 6239 | 6110 | 0613 | 1180 | 2624 | 9937 |
| 5417 | 8950 | 4530 | 3511  | 5605 | 9740 | 6827 | 6130 | 8353 | 3203 | 6266 |
| 1736 | 3480 | 4995 | 2895  | 7469 | 1505 | 3499 | 3957 | 2237 | 7623 | 9051 |
| 7630 | 2759 | 0496 | 8567  | 8906 | 6029 | 3547 | 0198 | 1369 | 3492 | 1402 |
| 5420 | 3648 | 8794 | 0472  | 1533 | 3950 | 4341 | 5480 | 4200 | 3840 | 8085 |
| 7920 | 9186 | 6596 | 1243  | 3426 | 6852 | 5140 | 5044 | 2807 | 7905 | 5117 |
| 0873 | 6060 | 1720 | 0047  | 3582 | 0639 | 6730 | 7649 | 7505 | 2484 | 1129 |
| 0899 | 3037 | 5554 | 2229  | 9341 | 6729 | 5380 | 2443 | 3650 | 7521 | 3880 |
| 3629 | 4605 | 8125 | 6880  | 6463 | 5349 | 7979 | 4525 | 5958 | 9010 | 0186 |
| 5776 | 6693 | 8826 | 7365  | 6796 | 9538 | 3607 | 4958 | 9228 | 4496 | 4019 |
| 8363 | 9951 | 6082 | 8386  | 1361 | 1345 | 1786 | 3480 | 2526 | 8888 | 9724 |
| 5131 | 3511 | 5303 | 3977  | 7015 | 0639 | 8724 | 1664 | 1749 | 6323 | 8508 |
| 6130 | 3772 | 6151 | 7323  | 8466 | 2810 | 4808 | 8151 | 8244 | 5803 | 5516 |
| 0552 | 7259 | 8814 | 1294  | 8640 | 5763 | 0403 | 6517 | 3401 | 3131 | 5511 |
| 1827 | 4419 | 5444 | 9862  | 9169 | 8149 | 5232 | 2811 | 3524 | 6796 | 4735 |
| 4255 | 3699 | 5494 | 8694  | 6284 | 2932 | 5967 | 8239 | 6988 | 5925 | 3481 |
| 4912 | 7695 | 3233 | 5928  | 9113 | 9923 | 4510 | 5081 | 2030 | 2897 | 7997 |
| 9903 | 4380 | 8835 | 8492  | 6141 | 6109 | 8789 | 6110 | 9347 | 5763 | 6091 |
| 6733 | 1234 | 0550 | 6904  | 6829 | 7194 | 9089 | 4576 | 2639 | 9556 | 1939 |

TbI.12 Random Numbers

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|      |      |      |      |      |      |      |      |      |      |      |
|------|------|------|------|------|------|------|------|------|------|------|
| 1818 | 6321 | 5996 | 9542 | 6153 | 0221 | 6777 | 6299 | 6907 | 2456 | 6865 |
| 7320 | 7848 | 0614 | 0000 | 2375 | 1435 | 5916 | 3878 | 1413 | 4988 | 7716 |
| 6982 | 5722 | 9495 | 6804 | 1490 | 9356 | 2667 | 4232 | 2208 | 8881 | 2645 |
| 6532 | 9081 | 9835 | 7248 | 8286 | 6405 | 5857 | 6098 | 5161 | 4407 | 7173 |
| 8224 | 6239 | 4950 | 0393 | 3254 | 3534 | 5167 | 3847 | 5394 | 3800 | 9352 |
| 4861 | 1825 | 8102 | 4470 | 6989 | 8987 | 5496 | 7501 | 2656 | 1253 | 9306 |
| 4930 | 0501 | 3833 | 6955 | 4942 | 8147 | 3405 | 7394 | 3743 | 2416 | 5081 |
| 4077 | 7131 | 8071 | 7190 | 6225 | 1254 | 7663 | 7343 | 6219 | 5429 | 1759 |
| 7487 | 2819 | 2772 | 4794 | 7068 | 6783 | 9208 | 2973 | 5422 | 6958 | 0079 |
| 4406 | 4045 | 7770 | 7585 | 3912 | 2806 | 6560 | 9686 | 7019 | 4905 | 6576 |
| 4093 | 2222 | 0079 | 8114 | 7274 | 3965 | 3766 | 1884 | 2323 | 1615 | 2794 |
| 8004 | 5741 | 2703 | 1715 | 7530 | 8359 | 2395 | 2984 | 7530 | 5971 | 9455 |
| 2272 | 2971 | 9118 | 2000 | 8306 | 4869 | 8999 | 5522 | 8116 | 9722 | 4249 |
| 3268 | 2960 | 1569 | 9984 | 9248 | 7739 | 5652 | 9725 | 0355 | 0501 | 8819 |
| 1616 | 5162 | 9188 | 0753 | 4475 | 1435 | 1120 | 9561 | 8998 | 8881 | 9287 |
| 7157 | 3713 | 3336 | 1043 | 0959 | 7285 | 4555 | 2243 | 0416 | 4864 | 3728 |
| 5165 | 0993 | 6250 | 6441 | 0487 | 8542 | 3121 | 9362 | 0128 | 0211 | 4877 |
| 7955 | 0872 | 9353 | 5136 | 9007 | 9332 | 0953 | 6509 | 5569 | 3290 | 7668 |
| 9156 | 5275 | 7878 | 3552 | 2121 | 7417 | 2208 | 1091 | 2744 | 0124 | 1902 |
| 0611 | 4528 | 8370 | 4637 | 6671 | 3640 | 4808 | 6151 | 3900 | 5736 | 6123 |
| 1882 | 4466 | 8450 | 3871 | 2213 | 9088 | 6933 | 0939 | 7076 | 4364 | 5286 |
| 9274 | 7598 | 0050 | 9957 | 4542 | 7367 | 5544 | 8265 | 3619 | 1216 | 5474 |
| 6493 | 9449 | 9206 | 9474 | 5251 | 1312 | 5865 | 4892 | 4980 | 7298 | 2866 |
| 1323 | 2943 | 4795 | 0576 | 8011 | 3756 | 6083 | 0505 | 2473 | 6388 | 1329 |
| 6785 | 0730 | 0001 | 9226 | 7786 | 4847 | 0478 | 0298 | 8003 | 1522 | 1283 |
| 8523 | 9025 | 6138 | 5722 | 8544 | 8189 | 3223 | 0921 | 5811 | 2730 | 2753 |
| 1860 | 8934 | 2387 | 8725 | 8782 | 4842 | 8072 | 8983 | 2618 | 5699 | 0296 |
| 9261 | 3539 | 5832 | 0839 | 2064 | 9052 | 2860 | 2649 | 6205 | 2477 | 9158 |
| 4615 | 3188 | 6012 | 4899 | 2165 | 1259 | 6072 | 4447 | 2504 | 1600 | 3254 |
| 1808 | 6708 | 9884 | 2053 | 1887 | 9685 | 6605 | 5786 | 8906 | 7073 | 1153 |
| 7037 | 2336 | 4463 | 7934 | 3334 | 5712 | 7596 | 8140 | 5092 | 9195 | 3341 |
| 9675 | 0927 | 2856 | 6788 | 8692 | 1330 | 1224 | 2118 | 5400 | 7708 | 9108 |
| 6639 | 1533 | 5485 | 0572 | 5810 | 3531 | 6797 | 5256 | 0046 | 1172 | 1931 |
| 1799 | 7308 | 2509 | 3150 | 8243 | 1923 | 0337 | 3863 | 4064 | 4031 | 0688 |
| 9715 | 0078 | 0019 | 8671 | 1107 | 6345 | 0393 | 5531 | 9645 | 2061 | 7675 |
| 2695 | 6039 | 5081 | 2157 | 7708 | 6229 | 8407 | 4908 | 7314 | 8388 | 4153 |
| 4925 | 1592 | 1334 | 6321 | 4461 | 7328 | 6107 | 8874 | 8038 | 4566 | 5822 |
| 9789 | 4619 | 0745 | 3750 | 5214 | 1209 | 2760 | 9878 | 9900 | 7078 | 3178 |
| 9186 | 2208 | 1551 | 1299 | 1287 | 5025 | 1616 | 5443 | 3082 | 0325 | 0428 |
| 7848 | 9211 | 5787 | 3783 | 4637 | 4195 | 5443 | 1991 | 3927 | 4207 | 2957 |

### **Counting**

| <b>No.</b> | <b>Greek</b> | <b>Latin</b> |
|------------|--------------|--------------|
| 1          | mono         | uni          |
| 2          | duo          | bi           |
| 3          | tri          | tri          |
| 4          | tetra        | quad         |
| 5          | penta        | quin         |
| 6          | hexa         | sex          |
| 7          | hepta        | sept         |
| 8          | octo         | oct          |
| 9          | nona         | non          |
| 10         | deca         | dec          |

*The "Handbook of Mathematics" has been written and produced by Robert Goodhand*

*Although the formulae and expressions given have been individually derived and checked errors do creep in. Sections of the Handbook are continuously updated.*

*If you would like the latest issue, just email me at [robert.goodhand@gmail.com](mailto:robert.goodhand@gmail.com)*