## Cumulative Probabilities of the Standard Normal Distribution

The table gives the probabilities  $\alpha = \Phi(z)$  to the left of given z-values for the standard normal distribution.

For example, the probability that a standard normal random variable Z is less than 1.53 is found at the intersection of the 1.5 rows and the 0.03 column, thus  $\Phi(1.53) = P(Z \le 1.53) = 0.9370$ . Due to symmetry it holds  $\Phi(-z) = 1 - \Phi(z)$  for all z.

Description   Column   Colum											
0.1     0.5398     0.5438     0.5478     0.5517     0.5557     0.5596     0.5636     0.5675     0.5714     0.5753       0.2     0.5793     0.5832     0.5871     0.5910     0.5948     0.5987     0.6026     0.6046     0.6143     0.6141       0.3     0.6179     0.6217     0.6255     0.6293     0.6331     0.6386     0.6406     0.6443     0.6480     0.6517       0.4     0.6554     0.6591     0.6628     0.6604     0.6704     0.6786     0.6727     0.6808     0.6844     0.6879       0.5     0.6915     0.6695     0.6985     0.7019     0.7034     0.7088     0.7123     0.7157     0.7549       0.6     0.7257     0.7291     0.7324     0.7357     0.7389     0.7422     0.7454     0.7454     0.7754     0.7754     0.7754     0.7754     0.7754     0.7754     0.7754     0.7754     0.7754     0.7754     0.7754     0.7754     0.7754     0.7754     0.7754     0.7754     0.7754     0.7754     0.	z	0.00	0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09
0.2     0.5793     0.5832     0.5871     0.5910     0.5948     0.5987     0.6026     0.6064     0.6103     0.6117       0.3     0.6179     0.6217     0.6255     0.6293     0.6331     0.6368     0.6406     0.6443     0.6480     0.6517       0.5     0.6915     0.6950     0.6985     0.7019     0.7054     0.7888     0.7123     0.7157     0.7190     0.7224       0.6     0.7257     0.7291     0.7324     0.7357     0.7389     0.7422     0.7454     0.7764     0.7549       0.7     0.7580     0.7611     0.7632     0.7673     0.7795     0.8023     0.8051     0.8078     0.8106     0.8133       0.9     0.8159     0.8186     0.8212     0.8238     0.8244     0.8289     0.8315     0.8340     0.8365     0.8389       1.0     0.8413     0.8486     0.8866     0.8708     0.8729     0.8749     0.8770     0.8790     0.8810     0.8830       1.2     0.8843     0.8661     0.8686	0.0	0.5000	0.5040	0.5080	0.5120	0.5160	0.5199	0.5239	0.5279	0.5319	0.5359
0.3     0.6179     0.6217     0.6255     0.6293     0.6331     0.6368     0.6406     0.6443     0.6480     0.6517       0.4     0.6554     0.6591     0.6628     0.6664     0.6700     0.6736     0.6772     0.6808     0.6844     0.6879       0.5     0.6915     0.6950     0.6985     0.7019     0.7054     0.7088     0.7123     0.7157     0.7190     0.7224       0.6     0.7257     0.7291     0.7324     0.7357     0.7389     0.7422     0.7444     0.7794     0.7583     0.7517     0.7549       0.8     0.7881     0.7910     0.7939     0.7967     0.7995     0.8023     0.8051     0.8078     0.8106     0.8133       0.9     0.8186     0.8216     0.8485     0.8508     0.8531     0.8554     0.8577     0.8599     0.8621       1.1     0.8643     0.8665     0.8686     0.8708     0.8729     0.8749     0.8770     0.8790     0.8810     0.8830       1.2     0.8849     0.8869	0.1	0.5398	0.5438	0.5478	0.5517	0.5557	0.5596	0.5636	0.5675	0.5714	0.5753
0.4     0.6554     0.6591     0.6628     0.6664     0.6700     0.6736     0.6772     0.6808     0.6844     0.6879       0.5     0.6915     0.6950     0.6985     0.7019     0.7054     0.7088     0.7123     0.7157     0.7190     0.7224       0.6     0.7257     0.7291     0.7324     0.7357     0.7389     0.7422     0.7454     0.7486     0.7517     0.7549       0.8     0.7881     0.7910     0.7939     0.7995     0.8023     0.8051     0.8078     0.8166     0.8133       0.9     0.8159     0.8186     0.8212     0.8238     0.8251     0.8340     0.8365     0.8365     0.8389       1.0     0.8413     0.8465     0.8686     0.8708     0.8729     0.8749     0.8770     0.8790     0.8810     0.8830       1.2     0.8849     0.8869     0.8888     0.8907     0.8925     0.8944     0.8962     0.8980     0.8997     0.9015       1.3     0.9032     0.9940     0.9066     0.9982	0.2		0.5832	0.5871	0.5910	0.5948	0.5987	0.6026	0.6064	0.6103	0.6141
0.5     0.6915     0.6950     0.6985     0.7019     0.7054     0.7088     0.7123     0.7157     0.7190     0.7224       0.6     0.7257     0.7291     0.7324     0.7357     0.7389     0.7422     0.7454     0.7466     0.7517     0.7549       0.7     0.7580     0.7611     0.7642     0.7673     0.7704     0.7734     0.7764     0.7794     0.7823     0.7852       0.8     0.7881     0.7910     0.7939     0.7967     0.7995     0.8023     0.8051     0.8078     0.8166     0.8133       0.9     0.8159     0.8186     0.8212     0.8238     0.8264     0.8289     0.8315     0.8340     0.8365     0.8381       1.0     0.8413     0.8486     0.8868     0.8870     0.88729     0.8749     0.8770     0.8790     0.8810     0.8830       1.2     0.8849     0.8869     0.8888     0.8907     0.8925     0.8944     0.8962     0.8980     0.8987     0.9015       1.3     0.9032     0.9940	0.3	0.6179	0.6217	0.6255	0.6293	0.6331	0.6368	0.6406	0.6443	0.6480	0.6517
0.6     0.7257     0.7291     0.7324     0.7357     0.7389     0.7422     0.7454     0.7486     0.7517     0.7549       0.7     0.7580     0.7611     0.7642     0.7673     0.7704     0.7734     0.7764     0.7794     0.7823     0.7852       0.8     0.7881     0.7910     0.7939     0.7967     0.7995     0.8023     0.8051     0.8078     0.8106     0.8133       0.9     0.8159     0.8186     0.8212     0.8238     0.8264     0.8289     0.8315     0.8340     0.8365     0.8389       1.0     0.8413     0.8468     0.8861     0.8850     0.8508     0.8531     0.8554     0.8577     0.8599     0.8621       1.1     0.8643     0.8665     0.8686     0.8708     0.8749     0.8770     0.8790     0.8810     0.8830       1.2     0.8849     0.8869     0.8888     0.8907     0.8925     0.8944     0.8962     0.8990     0.9915       1.3     0.9032     0.9949     0.9966     0.9926	0.4	0.6554	0.6591	0.6628	0.6664	0.6700	0.6736		0.6808	0.6844	0.6879
0.7     0.7580     0.7611     0.7642     0.7673     0.7704     0.7734     0.7764     0.7794     0.7823     0.7852       0.8     0.7881     0.7910     0.7939     0.7967     0.7995     0.8023     0.8051     0.8078     0.8106     0.8133       0.9     0.8159     0.8186     0.8212     0.8238     0.8264     0.8289     0.8315     0.8340     0.8365     0.8389       1.0     0.8413     0.8465     0.8665     0.8686     0.8708     0.8729     0.8749     0.8770     0.8790     0.8810     0.8830       1.2     0.8849     0.8869     0.8888     0.8907     0.8925     0.8944     0.8962     0.8980     0.8897     0.9015       1.3     0.9032     0.9049     0.9066     0.9982     0.9999     0.9115     0.9131     0.9147     0.9162     0.9171       1.4     0.9192     0.9207     0.9222     0.9236     0.9251     0.9265     0.9279     0.9242     0.9306     0.9319       1.5     0.9332	0.5	0.6915	0.6950	0.6985	0.7019	0.7054	0.7088	0.7123	0.7157	0.7190	0.7224
0.8     0.7881     0.7910     0.7939     0.7967     0.7995     0.8023     0.8051     0.8078     0.8106     0.8133       0.9     0.8159     0.8186     0.8212     0.8238     0.8264     0.8289     0.8315     0.8340     0.8365     0.8389       1.0     0.8413     0.8438     0.8461     0.8485     0.8508     0.8531     0.8554     0.8577     0.8599     0.8621       1.1     0.8643     0.8665     0.8686     0.8708     0.8729     0.8749     0.8770     0.8790     0.8810     0.8830       1.2     0.8849     0.8869     0.8888     0.8907     0.8925     0.8944     0.8962     0.8980     0.8997     0.9015       1.3     0.9032     0.9049     0.9066     0.9082     0.9999     0.9115     0.9131     0.9147     0.9142     0.9148     0.9177       1.4     0.9192     0.9207     0.9222     0.9236     0.9251     0.9265     0.9279     0.9292     0.9306     0.9316       1.5     0.9332	0.6	0.7257	0.7291	0.7324	0.7357	0.7389	0.7422	0.7454	0.7486	0.7517	0.7549
0.9     0.8159     0.8186     0.8212     0.8238     0.8264     0.8289     0.8315     0.8340     0.8365     0.8389       1.0     0.8413     0.8438     0.8461     0.8485     0.8508     0.8531     0.8554     0.8577     0.8599     0.8621       1.1     0.8643     0.8665     0.8686     0.8708     0.8729     0.8749     0.8770     0.8790     0.8810     0.8830       1.2     0.8849     0.8869     0.8888     0.8907     0.8925     0.8944     0.8962     0.8980     0.8997     0.9015       1.3     0.9032     0.9049     0.9066     0.9082     0.9099     0.9115     0.9131     0.9147     0.9162     0.9177       1.4     0.9192     0.9207     0.9222     0.9236     0.9251     0.9265     0.9279     0.9292     0.9306     0.9319       1.5     0.9332     0.9463     0.9474     0.9484     0.9495     0.9505     0.9515     0.9525     0.9535     0.9535     0.9535     0.9533     1.8946     0.9641 <th>0.7</th> <th>0.7580</th> <th>0.7611</th> <th>0.7642</th> <th>0.7673</th> <th>0.7704</th> <th>0.7734</th> <th>0.7764</th> <th>0.7794</th> <th>0.7823</th> <th>0.7852</th>	0.7	0.7580	0.7611	0.7642	0.7673	0.7704	0.7734	0.7764	0.7794	0.7823	0.7852
1.0     0.8413     0.8438     0.8461     0.8485     0.8508     0.8531     0.8554     0.8577     0.8599     0.8621       1.1     0.8643     0.8665     0.8686     0.8708     0.8729     0.8749     0.8770     0.8790     0.8810     0.8830       1.2     0.8849     0.8869     0.8888     0.8907     0.8925     0.8944     0.8962     0.8980     0.8997     0.9015       1.3     0.9032     0.9049     0.9066     0.9082     0.9099     0.9115     0.9131     0.9147     0.9162     0.9177       1.4     0.9192     0.9207     0.9222     0.9236     0.9251     0.9265     0.9279     0.9292     0.9306     0.9319       1.5     0.9332     0.9345     0.9357     0.9370     0.9382     0.9394     0.9406     0.9418     0.9429     0.9441       1.6     0.9452     0.9463     0.9474     0.9484     0.9495     0.9505     0.9515     0.9525     0.9535     0.9535       1.7     0.9549     0.9564	0.8	0.7881	0.7910	0.7939	0.7967	0.7995	0.8023	0.8051	0.8078	0.8106	0.8133
1.1     0.8643     0.8665     0.8686     0.8708     0.8729     0.8749     0.8770     0.8790     0.8810     0.8830       1.2     0.8849     0.8869     0.8888     0.8907     0.8925     0.8944     0.8962     0.8980     0.8997     0.9015       1.3     0.9032     0.9049     0.9066     0.9082     0.9099     0.9115     0.9131     0.9147     0.9162     0.9177       1.4     0.9192     0.9207     0.9222     0.9236     0.9251     0.9265     0.9279     0.9292     0.9306     0.9319       1.5     0.9332     0.9345     0.9357     0.9370     0.9382     0.9394     0.9406     0.9418     0.9429     0.9441       1.6     0.9452     0.9463     0.9474     0.9484     0.9495     0.9505     0.9515     0.9525     0.9535     0.9545       1.7     0.9544     0.9564     0.9573     0.9581     0.9599     0.9686     0.9693     0.9699     0.9766       1.9     0.9713     0.9719     0.9726	0.9	0.8159	0.8186	0.8212	0.8238	0.8264	0.8289	0.8315	0.8340	0.8365	0.8389
1.2     0.8849     0.8869     0.8888     0.8907     0.8925     0.8944     0.8962     0.8980     0.8997     0.9015       1.3     0.9032     0.9049     0.9066     0.9082     0.9099     0.9115     0.9131     0.9147     0.9162     0.9177       1.4     0.9192     0.9207     0.9222     0.9236     0.9251     0.9265     0.9279     0.9292     0.9366     0.9319       1.5     0.9332     0.9345     0.9357     0.9370     0.9382     0.9394     0.9466     0.9418     0.9429     0.9441       1.6     0.9452     0.9463     0.9474     0.9484     0.9495     0.9505     0.9515     0.9525     0.9535     0.9545       1.7     0.9554     0.9564     0.9573     0.9582     0.9599     0.9608     0.9616     0.9625     0.9633       1.8     0.9641     0.9649     0.9656     0.9664     0.9671     0.9678     0.9686     0.9693     0.9699     0.9766       1.9     0.9772     0.9778     0.9783	1.0	0.8413	0.8438	0.8461	0.8485	0.8508	0.8531	0.8554	0.8577	0.8599	0.8621
1.3     0.9032     0.9049     0.9066     0.9082     0.9099     0.9115     0.9131     0.9147     0.9162     0.9177       1.4     0.9192     0.9207     0.9222     0.9236     0.9251     0.9265     0.9279     0.9292     0.9306     0.9319       1.5     0.9332     0.9345     0.9357     0.9370     0.9382     0.9394     0.9406     0.9418     0.9429     0.9441       1.6     0.9452     0.9463     0.9474     0.9484     0.9495     0.9505     0.9515     0.9525     0.9535     0.9545       1.7     0.9554     0.9564     0.9573     0.9582     0.9591     0.9599     0.9608     0.9616     0.9625     0.9633       1.8     0.9641     0.9649     0.9656     0.9664     0.9671     0.9678     0.9686     0.9693     0.9699     0.9706       1.9     0.9713     0.97719     0.9726     0.9732     0.9738     0.9744     0.9750     0.9761     0.9767       2.0     0.9772     0.9778     0.9783	1.1	0.8643	0.8665	0.8686	0.8708	0.8729	0.8749	0.8770	0.8790	0.8810	0.8830
1.4     0.9192     0.9207     0.9222     0.9236     0.9251     0.9265     0.9279     0.9292     0.9306     0.9319       1.5     0.9332     0.9345     0.9357     0.9370     0.9382     0.9394     0.9406     0.9418     0.9429     0.9441       1.6     0.9452     0.9463     0.9474     0.9484     0.9495     0.9505     0.9515     0.9525     0.9535     0.9545       1.7     0.9554     0.9564     0.9573     0.9582     0.9591     0.9599     0.9608     0.9616     0.9625     0.9633       1.8     0.9641     0.9649     0.9656     0.9664     0.9671     0.9678     0.9686     0.9693     0.9699     0.9766       1.9     0.9713     0.9719     0.9726     0.9732     0.9738     0.9744     0.9750     0.9761     0.9767       2.0     0.9772     0.9778     0.9783     0.9783     0.9794     0.9750     0.9756     0.9761     0.9767       2.1     0.9821     0.9826     0.9830     0.9834	1.2	0.8849	0.8869	0.8888	0.8907	0.8925	0.8944	0.8962	0.8980	0.8997	0.9015
1.5     0.9332     0.9345     0.9357     0.9370     0.9382     0.9394     0.9406     0.9418     0.9429     0.9441       1.6     0.9452     0.9463     0.9474     0.9484     0.9495     0.9505     0.9515     0.9525     0.9535     0.9545       1.7     0.9554     0.9564     0.9573     0.9582     0.9591     0.9599     0.9608     0.9616     0.9625     0.9633       1.8     0.9641     0.9649     0.9656     0.9664     0.9671     0.9678     0.9686     0.9693     0.9699     0.9706       1.9     0.9713     0.9719     0.9726     0.9732     0.9738     0.9744     0.9750     0.9756     0.9761     0.9767       2.0     0.9772     0.9778     0.9783     0.9783     0.9798     0.9803     0.9808     0.9812     0.9817       2.1     0.9821     0.9826     0.9830     0.9834     0.9838     0.9842     0.9846     0.9850     0.9857     0.9850       2.2     0.9861     0.9864     0.9888	1.3	0.9032	0.9049	0.9066	0.9082	0.9099	0.9115	0.9131	0.9147	0.9162	0.9177
1.6     0.9452     0.9463     0.9474     0.9484     0.9495     0.9505     0.9515     0.9525     0.9535     0.9545       1.7     0.9554     0.9564     0.9573     0.9582     0.9591     0.9599     0.9608     0.9616     0.9625     0.9633       1.8     0.9641     0.9649     0.9656     0.9664     0.9671     0.9678     0.9686     0.9693     0.9699     0.9706       1.9     0.9713     0.9719     0.9726     0.9732     0.9738     0.9744     0.9750     0.9756     0.9761     0.9767       2.0     0.9772     0.9778     0.9783     0.9788     0.9793     0.9798     0.9803     0.9808     0.9812     0.9817       2.1     0.9821     0.9826     0.9830     0.9834     0.9838     0.9842     0.9846     0.9850     0.9857       2.2     0.9861     0.9864     0.9868     0.9871     0.9975     0.9878     0.9881     0.9884     0.9887     0.9890       2.3     0.9983     0.99940     0.99941	1.4	0.9192	0.9207	0.9222	0.9236	0.9251	0.9265	0.9279	0.9292	0.9306	0.9319
1.7     0.9554     0.9564     0.9573     0.9582     0.9591     0.9599     0.9608     0.9616     0.9625     0.9633       1.8     0.9641     0.9649     0.9656     0.9664     0.9671     0.9678     0.9686     0.9693     0.9699     0.9706       1.9     0.9713     0.9719     0.9726     0.9732     0.9738     0.9744     0.9750     0.9756     0.9761     0.9767       2.0     0.9772     0.9778     0.9783     0.9788     0.9793     0.9798     0.9803     0.9808     0.9812     0.9817       2.1     0.9821     0.9826     0.9830     0.9834     0.9838     0.9842     0.9846     0.9850     0.9857     0.9857       2.2     0.9861     0.9864     0.9868     0.9871     0.9975     0.9878     0.9881     0.9884     0.9887     0.9890       2.3     0.9933     0.9896     0.9898     0.9901     0.9927     0.9929     0.9931     0.9932     0.9934     0.9934       2.4     0.9918     0.9940	1.5	0.9332	0.9345	0.9357	0.9370	0.9382	0.9394	0.9406	0.9418	0.9429	0.9441
1.8     0.9641     0.9649     0.9656     0.9664     0.9671     0.9678     0.9686     0.9693     0.9699     0.9706       1.9     0.9713     0.9719     0.9726     0.9732     0.9738     0.9744     0.9750     0.9756     0.9761     0.9767       2.0     0.9772     0.9778     0.9783     0.9788     0.9793     0.9798     0.9803     0.9808     0.9812     0.9817       2.1     0.9821     0.9826     0.9830     0.9834     0.9838     0.9842     0.9846     0.9850     0.9854     0.9857       2.2     0.9861     0.9868     0.9871     0.9875     0.9878     0.9881     0.9884     0.9887     0.9890       2.3     0.9893     0.9896     0.9989     0.9901     0.9904     0.9906     0.9909     0.9911     0.9913     0.9913     0.9913     0.9913     0.9934     0.9936       2.5     0.9938     0.9941     0.9943     0.9945     0.9946     0.9948     0.9949     0.9951     0.9952       2.6	1.6	0.9452	0.9463	0.9474	0.9484	0.9495	0.9505	0.9515	0.9525	0.9535	0.9545
1.9     0.9713     0.9719     0.9726     0.9732     0.9738     0.9744     0.9750     0.9756     0.9761     0.9767       2.0     0.9772     0.9778     0.9783     0.9788     0.9793     0.9798     0.9803     0.9808     0.9812     0.9817       2.1     0.9821     0.9826     0.9830     0.9834     0.9838     0.9842     0.9846     0.9850     0.9854     0.9857       2.2     0.9861     0.9864     0.9868     0.9871     0.9975     0.9878     0.9881     0.9884     0.9887     0.9890       2.3     0.9893     0.9896     0.9898     0.9901     0.9904     0.9906     0.9909     0.9911     0.9913     0.9913     0.9914     0.9936     0.9922     0.9925     0.9927     0.9929     0.9931     0.9932     0.9934     0.9936       2.5     0.9938     0.9941     0.9943     0.9945     0.9946     0.9948     0.9949     0.9951     0.9952       2.6     0.9953     0.9966     0.9967     0.9968     0.9969 <th>1.7</th> <th>0.9554</th> <th>0.9564</th> <th>0.9573</th> <th>0.9582</th> <th>0.9591</th> <th>0.9599</th> <th>0.9608</th> <th>0.9616</th> <th>0.9625</th> <th>0.9633</th>	1.7	0.9554	0.9564	0.9573	0.9582	0.9591	0.9599	0.9608	0.9616	0.9625	0.9633
2.0     0.9772     0.9778     0.9783     0.9788     0.9793     0.9798     0.9803     0.9808     0.9812     0.9817       2.1     0.9821     0.9826     0.9830     0.9834     0.9838     0.9842     0.9846     0.9850     0.9854     0.9857       2.2     0.9861     0.9864     0.9868     0.9871     0.9875     0.9878     0.9881     0.9884     0.9887     0.9890       2.3     0.9893     0.9896     0.9898     0.9901     0.9904     0.9906     0.9909     0.9911     0.9913     0.9916       2.4     0.9918     0.9920     0.9922     0.9925     0.9927     0.9929     0.9931     0.9932     0.9934     0.9936       2.5     0.9938     0.9941     0.9943     0.9945     0.9946     0.9948     0.9949     0.9951     0.9952       2.6     0.9953     0.9956     0.9957     0.9959     0.9960     0.9961     0.9962     0.9963     0.9974       2.8     0.9974     0.9975     0.9968     0.9997	1.8	0.9641	0.9649	0.9656	0.9664	0.9671	0.9678	0.9686	0.9693	0.9699	0.9706
2.1   0.9821   0.9826   0.9830   0.9834   0.9838   0.9842   0.9846   0.9850   0.9854   0.9857     2.2   0.9861   0.9864   0.9868   0.9871   0.9875   0.9878   0.9881   0.9884   0.9887   0.9890     2.3   0.9893   0.9896   0.9898   0.9901   0.9904   0.9906   0.9909   0.9911   0.9913   0.9916     2.4   0.9918   0.9920   0.9922   0.9925   0.9927   0.9929   0.9931   0.9932   0.9934   0.9936     2.5   0.9938   0.9940   0.9941   0.9943   0.9945   0.9946   0.9948   0.9949   0.9951   0.9952     2.6   0.9953   0.9955   0.9956   0.9957   0.9959   0.9960   0.9961   0.9962   0.9963   0.9964     2.7   0.9965   0.9966   0.9967   0.9968   0.9969   0.9970   0.9971   0.9972   0.9973   0.9973   0.9981     2.9   0.9981   0.9982   0.9983   0.9984   0.9984   0.9985   0.9985   0.9986	1.9	0.9713	0.9719	0.9726	0.9732	0.9738	0.9744	0.9750	0.9756	0.9761	0.9767
2.2     0.9861     0.9864     0.9868     0.9871     0.9875     0.9878     0.9881     0.9884     0.9887     0.9890       2.3     0.9893     0.9896     0.9898     0.9901     0.9904     0.9906     0.9909     0.9911     0.9913     0.9916       2.4     0.9918     0.9920     0.9922     0.9925     0.9927     0.9929     0.9931     0.9932     0.9934     0.9936       2.5     0.9938     0.9940     0.9941     0.9943     0.9945     0.9946     0.9948     0.9949     0.9951     0.9952       2.6     0.9953     0.9955     0.9956     0.9957     0.9959     0.9960     0.9961     0.9962     0.9963     0.9964       2.7     0.9965     0.9967     0.9968     0.9969     0.9970     0.9971     0.9972     0.9973     0.9973     0.9981       2.8     0.9974     0.9975     0.9976     0.9977     0.9977     0.9978     0.9985     0.9986     0.9986       3.0     0.9987     0.9987     0.9988	2.0	0.9772	0.9778	0.9783	0.9788	0.9793	0.9798	0.9803	0.9808	0.9812	0.9817
2.3     0.9893     0.9896     0.9898     0.9901     0.9904     0.9906     0.9909     0.9911     0.9913     0.9916       2.4     0.9918     0.9920     0.9922     0.9925     0.9927     0.9929     0.9931     0.9932     0.9934     0.9936       2.5     0.9938     0.9940     0.9941     0.9943     0.9945     0.9946     0.9948     0.9949     0.9951     0.9952       2.6     0.9953     0.9955     0.9956     0.9957     0.9959     0.9960     0.9961     0.9962     0.9963     0.9964       2.7     0.9965     0.9966     0.9967     0.9968     0.9969     0.9970     0.9971     0.9972     0.9973     0.9974       2.8     0.9974     0.9975     0.9977     0.9977     0.9978     0.9979     0.9979     0.9979     0.9980     0.9986       3.0     0.9987     0.9987     0.9988     0.9984     0.9985     0.9985     0.9986     0.9990       3.1     0.9993     0.9991     0.9991     0.9994	2.1	0.9821	0.9826	0.9830	0.9834	0.9838	0.9842	0.9846	0.9850	0.9854	0.9857
2.4   0.9918   0.9920   0.9922   0.9925   0.9927   0.9929   0.9931   0.9932   0.9934   0.9936     2.5   0.9938   0.9940   0.9941   0.9943   0.9945   0.9946   0.9948   0.9949   0.9951   0.9952     2.6   0.9953   0.9955   0.9956   0.9957   0.9959   0.9960   0.9961   0.9962   0.9963   0.9964     2.7   0.9965   0.9966   0.9967   0.9968   0.9969   0.9970   0.9971   0.9972   0.9973   0.9974     2.8   0.9974   0.9975   0.9976   0.9977   0.9977   0.9978   0.9979   0.9979   0.9980   0.9981     2.9   0.9981   0.9982   0.9982   0.9983   0.9984   0.9984   0.9985   0.9985   0.9986   0.9986     3.0   0.9987   0.9987   0.9988   0.9988   0.9989   0.9989   0.9999   0.9999   0.9993   0.9993   0.9993     3.1   0.9993   0.9993   0.9994   0.9994   0.9994   0.9994   0.9995   0.9995	2.2	0.9861	0.9864	0.9868	0.9871	0.9875	0.9878	0.9881	0.9884	0.9887	0.9890
2.5     0.9938     0.9940     0.9941     0.9943     0.9945     0.9946     0.9948     0.9949     0.9951     0.9952       2.6     0.9953     0.9955     0.9956     0.9957     0.9959     0.9960     0.9961     0.9962     0.9963     0.9964       2.7     0.9965     0.9966     0.9967     0.9968     0.9969     0.9970     0.9971     0.9972     0.9973     0.9974       2.8     0.9974     0.9975     0.9976     0.9977     0.9977     0.9978     0.9979     0.9979     0.9979     0.9980     0.9981       2.9     0.9981     0.9982     0.9983     0.9984     0.9984     0.9985     0.9985     0.9986     0.9986       3.0     0.9987     0.9987     0.9988     0.9988     0.9989     0.9989     0.9989     0.9999     0.9990     0.9993       3.1     0.9993     0.9991     0.9994     0.9994     0.9994     0.9994     0.9995     0.9995     0.9996     0.9996     0.9996     0.9996     0.9996     0.9996 <th>2.3</th> <th>0.9893</th> <th>0.9896</th> <th>0.9898</th> <th>0.9901</th> <th>0.9904</th> <th>0.9906</th> <th>0.9909</th> <th>0.9911</th> <th>0.9913</th> <th>0.9916</th>	2.3	0.9893	0.9896	0.9898	0.9901	0.9904	0.9906	0.9909	0.9911	0.9913	0.9916
2.6   0.9953   0.9955   0.9956   0.9957   0.9959   0.9960   0.9961   0.9962   0.9963   0.9964     2.7   0.9965   0.9966   0.9967   0.9968   0.9969   0.9970   0.9971   0.9972   0.9973   0.9974     2.8   0.9974   0.9975   0.9976   0.9977   0.9977   0.9978   0.9979   0.9979   0.9980   0.9981     2.9   0.9981   0.9982   0.9982   0.9983   0.9984   0.9984   0.9985   0.9985   0.9986   0.9986     3.0   0.9987   0.9987   0.9988   0.9988   0.9989   0.9989   0.9989   0.9999   0.9990   0.9990     3.1   0.9990   0.9991   0.9991   0.9991   0.9992   0.9992   0.9992   0.9992   0.9992   0.9995   0.9995   0.9996   0.	2.4	0.9918	0.9920	0.9922	0.9925	0.9927	0.9929	0.9931	0.9932	0.9934	0.9936
2.7   0.9965   0.9966   0.9967   0.9968   0.9969   0.9970   0.9971   0.9972   0.9973   0.9974     2.8   0.9974   0.9975   0.9976   0.9977   0.9977   0.9978   0.9979   0.9979   0.9980   0.9981     2.9   0.9981   0.9982   0.9982   0.9983   0.9984   0.9984   0.9985   0.9985   0.9986   0.9986     3.0   0.9987   0.9987   0.9988   0.9988   0.9989   0.9989   0.9989   0.9990   0.9990   0.9990     3.1   0.9990   0.9991   0.9991   0.9991   0.9992   0.9992   0.9992   0.9992   0.9993   0.9993   0.9995     3.2   0.9993   0.9995   0.9994   0.9996   0.	2.5	0.9938	0.9940	0.9941	0.9943	0.9945	0.9946	0.9948	0.9949	0.9951	0.9952
2.8   0.9974   0.9975   0.9976   0.9977   0.9977   0.9978   0.9979   0.9979   0.9980   0.9981     2.9   0.9981   0.9982   0.9982   0.9983   0.9984   0.9984   0.9985   0.9985   0.9986   0.9986     3.0   0.9987   0.9987   0.9988   0.9988   0.9989   0.9989   0.9989   0.9990   0.9990   0.9990     3.1   0.9990   0.9991   0.9991   0.9991   0.9992   0.9992   0.9992   0.9992   0.9993   0.9993   0.9995     3.2   0.9993   0.9993   0.9994   0.9994   0.9994   0.9994   0.9996	2.6	0.9953	0.9955	0.9956	0.9957	0.9959	0.9960	0.9961	0.9962	0.9963	0.9964
2.9   0.9981   0.9982   0.9982   0.9983   0.9984   0.9984   0.9985   0.9985   0.9986   0.9986     3.0   0.9987   0.9987   0.9988   0.9988   0.9989   0.9989   0.9989   0.9999   0.9990   0.9990     3.1   0.9990   0.9991   0.9991   0.9991   0.9992   0.9992   0.9992   0.9992   0.9993   0.9993   0.9993     3.2   0.9993   0.9993   0.9994   0.9994   0.9994   0.9994   0.9994   0.9994   0.9995   0.9996	2.7	0.9965	0.9966	0.9967	0.9968	0.9969	0.9970	0.9971	0.9972	0.9973	0.9974
3.0 0.9987 0.9987 0.9987 0.9988 0.9988 0.9989 0.9989 0.9989 0.9990 0.9990 0.9990   3.1 0.9990 0.9991 0.9991 0.9992 0.9992 0.9992 0.9992 0.9993 0.9993 0.9993   3.2 0.9993 0.9993 0.9994 0.9994 0.9994 0.9994 0.9994 0.9995 0.9995 0.9996 0.9996 0.9996 0.9996 0.9996 0.9996 0.9996 0.9996 0.9996 0.9996 0.9996 0.9996	2.8	0.9974	0.9975	0.9976	0.9977	0.9977	0.9978	0.9979	0.9979	0.9980	0.9981
3.1 0.9990 0.9991 0.9991 0.9991 0.9992 0.9992 0.9992 0.9992 0.9993 0.9993 0.9993   3.2 0.9993 0.9993 0.9994 0.9994 0.9994 0.9994 0.9994 0.9995 0.9995 0.9996	2.9	0.9981	0.9982	0.9982	0.9983	0.9984	0.9984	0.9985	0.9985	0.9986	0.9986
3.2 0.9993 0.9993 0.9994 0.9994 0.9994 0.9994 0.9994 0.9995 0.9995 0.9995 0.9996	3.0	0.9987	0.9987	0.9987	0.9988	0.9988	0.9989	0.9989	0.9989	0.9990	0.9990
3.3 0.9995 0.9995 0.9995 0.9996 0.9996 0.9996 0.9996 0.9996 0.9997	3.1	0.9990	0.9991	0.9991	0.9991	0.9992	0.9992	0.9992	0.9992	0.9993	0.9993
	3.2	0.9993	0.9993	0.9994	0.9994	0.9994	0.9994	0.9994	0.9995	0.9995	0.9995
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$	3.3	0.9995	0.9995	0.9995	0.9996	0.9996	0.9996	0.9996	0.9996	0.9996	0.9997
	3.4	0.9997	0.9997	0.9997	0.9997	0.9997	0.9997	0.9997	0.9997	0.9997	0.9998

## Quantiles of the Standard Normal Distribution

For selected probabilities  $\alpha$ , the table shows the values of the quantiles  $z_{\alpha}$  such that  $\Phi(z_{\alpha}) = P(Z \leq z_{\alpha}) = \alpha$ , where Z is a standard normal random variable.

The quantiles satisfy the relation  $z_{1-\alpha} = -z_{\alpha}$ .

$\alpha$	0.9	0.95	0.975	0.99	0.995	0.999
$z_{\alpha}$	1.282	1.645	1.960	2.326	2.576	3.090