Standard Normal table

standard units

$$z = \frac{x - \mu}{\sigma}$$

use table to convert

percentile rank

$P(z \text{ or less}) = \text{area left of } z$

$P(z \text{ or less})$

$y = (2\pi e^{z^2})^{-0.5}$

z

0

symmetry: $P(-z \text{ or less}) = 1 - P(z \text{ or less})$
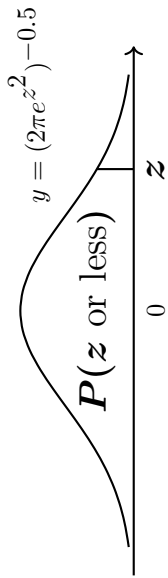
	0.00	0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09	
≤ −3.50	0.0001										
−3.4	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0002	−3.4
−3.3	0.0005	0.0005	0.0005	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	−3.3
−3.2	0.0007	0.0007	0.0006	0.0006	0.0006	0.0006	0.0006	0.0005	0.0005	0.0005	−3.2
−3.1	0.0010	0.0010	0.0009	0.0009	0.0009	0.0008	0.0008	0.0008	0.0007	0.0007	−3.1
−3.0	0.0014	0.0013	0.0013	0.0012	0.0012	0.0011	0.0011	0.0011	0.0010	0.0010	−3.0
−2.9	0.0019	0.0018	0.0018	0.0017	0.0017	0.0016	0.0015	0.0015	0.0015	0.0014	−2.9
−2.8	0.0026	0.0025	0.0024	0.0023	0.0023	0.0022	0.0021	0.0021	0.0020	0.0019	−2.8
−2.7	0.0035	0.0034	0.0033	0.0032	0.0031	0.0030	0.0029	0.0028	0.0027	0.0026	−2.7
−2.6	0.0047	0.0045	0.0044	0.0043	0.0042	0.0040	0.0039	0.0038	0.0037	0.0036	−2.6
−2.5	0.0062	0.0060	0.0059	0.0057	0.0056	0.0054	0.0053	0.0051	0.0049	0.0048	−2.5
−2.4	0.0082	0.0080	0.0078	0.0076	0.0074	0.0072	0.0070	0.0068	0.0066	0.0064	−2.4
−2.3	0.0107	0.0105	0.0102	0.0099	0.0097	0.0094	0.0092	0.0089	0.0087	0.0084	−2.3
−2.2	0.0139	0.0136	0.0132	0.0129	0.0126	0.0122	0.0119	0.0116	0.0113	0.0110	−2.2
−2.1	0.0179	0.0174	0.0170	0.0166	0.0162	0.0158	0.0154	0.0150	0.0146	0.0143	−2.1
−2.0	0.0228	0.0222	0.0217	0.0212	0.0207	0.0202	0.0197	0.0192	0.0188	0.0183	−2.0
−1.9	0.0287	0.0281	0.0274	0.0268	0.0262	0.0256	0.0250	0.0244	0.0239	0.0233	−1.9
−1.8	0.0359	0.0352	0.0344	0.0336	0.0329	0.0322	0.0315	0.0308	0.0301	0.0294	−1.8
−1.7	0.0446	0.0436	0.0427	0.0418	0.0409	0.0401	0.0392	0.0384	0.0375	0.0367	−1.7
−1.6	0.0548	0.0537	0.0526	0.0515	0.0505	0.0495	0.0485	0.0475	0.0465	0.0455	−1.6
−1.5	0.0668	0.0655	0.0643	0.0630	0.0618	0.0606	0.0594	0.0582	0.0571	0.0559	−1.5
−1.4	0.0808	0.0793	0.0778	0.0764	0.0749	0.0735	0.0721	0.0708	0.0694	0.0681	−1.4
−1.3	0.0968	0.0951	0.0934	0.0918	0.0901	0.0885	0.0869	0.0853	0.0838	0.0823	−1.3
−1.2	0.1151	0.1131	0.1112	0.1093	0.1075	0.1056	0.1038	0.1020	0.1003	0.0985	−1.2
−1.1	0.1357	0.1335	0.1314	0.1292	0.1271	0.1251	0.1230	0.1210	0.1190	0.1170	−1.1
−1.0	0.1587	0.1562	0.1539	0.1515	0.1492	0.1469	0.1446	0.1423	0.1401	0.1379	−1.0
−0.9	0.1841	0.1814	0.1788	0.1762	0.1736	0.1711	0.1685	0.1660	0.1635	0.1611	−0.9
−0.8	0.2119	0.2090	0.2061	0.2033	0.2005	0.1977	0.1949	0.1922	0.1894	0.1867	−0.8
−0.7	0.2420	0.2389	0.2358	0.2327	0.2297	0.2266	0.2236	0.2207	0.2177	0.2148	−0.7
−0.6	0.2743	0.2710	0.2676	0.2644	0.2611	0.2579	0.2546	0.2515	0.2483	0.2451	−0.6
−0.5	0.3086	0.3050	0.3015	0.2981	0.2946	0.2912	0.2878	0.2844	0.2810	0.2776	−0.5
−0.4	0.3446	0.3409	0.3373	0.3336	0.3300	0.3264	0.3228	0.3192	0.3156	0.3121	−0.4
−0.3	0.3821	0.3783	0.3745	0.3707	0.3669	0.3632	0.3594	0.3557	0.3520	0.3483	−0.3
−0.2	0.4207	0.4168	0.4129	0.4090	0.4052	0.4013	0.3974	0.3936	0.3897	0.3859	−0.2
−0.1	0.4602	0.4562	0.4522	0.4483	0.4443	0.4404	0.4364	0.4325	0.4286	0.4247	−0.1
−0.0	0.5000	0.4960	0.4920	0.4880	0.4840	0.4801	0.4761	0.4721	0.4681	0.4641	−0.0
0.0	0.5000	0.5040	0.5080	0.5120	0.5160	0.5199	0.5239	0.5279	0.5319	0.5359	0.0
0.1	0.5398	0.5438	0.5478	0.5517	0.5557	0.5596	0.5636	0.5675	0.5714	0.5754	0.1
0.2	0.5793	0.5832	0.5871	0.5910	0.5948	0.5987	0.6026	0.6064	0.6103	0.6141	0.2
0.3	0.6179	0.6217	0.6255	0.6293	0.6331	0.6368	0.6406	0.6443	0.6480	0.6517	0.3
0.4	0.6554	0.6591	0.6627	0.6664	0.6700	0.6736	0.6772	0.6808	0.6844	0.6879	0.4
0.5	0.6915	0.6950	0.6985	0.7019	0.7054	0.7088	0.7123	0.7157	0.7190	0.7224	0.5
0.6	0.7257	0.7291	0.7324	0.7356	0.7389	0.7421	0.7454	0.7486	0.7517	0.7549	0.6
0.7	0.7580	0.7611	0.7642	0.7673	0.7703	0.7734	0.7764	0.7793	0.7823	0.7852	0.7
0.8	0.7881	0.7910	0.7939	0.7967	0.7996	0.8023	0.8051	0.8079	0.8106	0.8133	0.8
0.9	0.8160	0.8186	0.8212	0.8238	0.8264	0.8290	0.8315	0.8340	0.8365	0.8389	0.9
1.0	0.8414	0.8438	0.8462	0.8485	0.8509	0.8532	0.8554	0.8577	0.8599	0.8622	1.0
1.1	0.8643	0.8665	0.8687	0.8708	0.8729	0.8749	0.8770	0.8790	0.8810	0.8830	1.1
1.2	0.8849	0.8869	0.8888	0.8907	0.8925	0.8944	0.8962	0.8980	0.8997	0.9015	1.2
1.3	0.9032	0.9049	0.9066	0.9083	0.9099	0.9115	0.9131	0.9147	0.9162	0.9177	1.3
1.4	0.9193	0.9207	0.9222	0.9237	0.9251	0.9265	0.9279	0.9292	0.9306	0.9319	1.4
1.5	0.9332	0.9345	0.9358	0.9370	0.9382	0.9394	0.9406	0.9418	0.9430	0.9441	1.5
1.6	0.9452	0.9463	0.9474	0.9485	0.9495	0.9505	0.9515	0.9526	0.9535	0.9545	1.6
1.7	0.9554	0.9564	0.9573	0.9582	0.9591	0.9599	0.9608	0.9616	0.9625	0.9633	1.7
1.8	0.9641	0.9648	0.9656	0.9664	0.9671	0.9678	0.9686	0.9693	0.9699	0.9706	1.8
1.9	0.9713	0.9719	0.9726	0.9732	0.9738	0.9744	0.9750	0.9756	0.9761	0.9767	1.9
2.0	0.9772	0.9778	0.9783	0.9788	0.9793	0.9798	0.9803	0.9808	0.9812	0.9817	2.0
2.1	0.9821	0.9826	0.9830	0.9834	0.9838	0.9842	0.9846	0.9850	0.9854	0.9857	2.1
2.2	0.9861	0.9864	0.9868	0.9871	0.9874	0.9878	0.9881	0.9884	0.9887	0.9890	2.2
2.3	0.9893	0.9896	0.9898	0.9901	0.9903	0.9906	0.9908	0.9911	0.9913	0.9916	2.3
2.4	0.9918	0.9920	0.9922	0.9925	0.9927	0.9928	0.9930	0.9932	0.9934	0.9936	2.4
2.5	0.9938	0.9940	0.9941	0.9943	0.9945	0.9946	0.9948	0.9949	0.9951	0.9952	2.5
2.6	0.9953	0.9955	0.9956	0.9957	0.9959	0.9960	0.9961	0.9962	0.9963	0.9964	2.6
2.7	0.9965	0.9966	0.9967	0.9968	0.9969	0.9970	0.9971	0.9972	0.9973	0.9974	2.7
2.8	0.9974	0.9975	0.9976	0.9977	0.9977	0.9978	0.9979	0.9979	0.9980	0.9981	2.8
2.9	0.9981	0.9982	0.9983	0.9983	0.9984	0.9984	0.9985	0.9985	0.9986	0.9986	2.9
3.0	0.9986	0.9987	0.9987	0.9988	0.9988	0.9989	0.9989	0.9989	0.9990	0.9990	3.0
3.1	0.9990	0.9991	0.9991	0.9991	0.9992	0.9992	0.9992	0.9992	0.9993	0.9993	3.1
3.2	0.9993	0.9993	0.9994	0.9994	0.9994	0.9994	0.9994	0.9995	0.9995	0.9995	3.2
3.3	0.9995	0.9995	0.9995	0.9996	0.9996	0.9996	0.9996	0.9996	0.9996	0.9997	3.3
3.4	0.9997	0.9997	0.9997	0.9997	0.9997	0.9997	0.9997	0.9997	0.9997	0.9998	3.4
≥ 3.50	0.0001										
	0.00	0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09	

F_Z table

	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09	
0.0	.500	.504	.508	.512	.516	.520	.524	.528	.532	.536	0.0
0.1	.540	.544	.548	.552	.556	.560	.564	.567	.571	.575	0.1
0.2	.579	.583	.587	.591	.595	.599	.603	.606	.610	.614	0.2
0.3	.618	.622	.626	.629	.633	.637	.641	.644	.648	.652	0.3
0.4	.655	.659	.663	.666	.670	.674	.677	.681	.684	.688	0.4
0.5	.691	.695	.698	.702	.705	.709	.712	.716	.719	.722	0.5
0.6	.726	.729	.732	.736	.739	.742	.745	.749	.752	.755	0.6
0.7	.758	.761	.764	.767	.770	.773	.776	.779	.782	.785	0.7
0.8	.788	.791	.794	.797	.800	.802	.805	.808	.811	.813	0.8
0.9	.816	.819	.821	.824	.826	.829	.831	.834	.836	.839	0.9
1.0	.841	.844	.846	.848	.851	.853	.855	.858	.860	.862	1.0
1.1	.864	.867	.869	.871	.873	.875	.877	.879	.881	.883	1.1
1.2	.885	.887	.889	.891	.893	.894	.896	.898	.900	.901	1.2
1.3	.903	.905	.907	.908	.910	.911	.913	.915	.916	.918	1.3
1.4	.919	.921	.922	.924	.925	.926	.928	.929	.931	.932	1.4
1.5	.933	.934	.936	.937	.938	.939	.941	.942	.943	.944	1.5
1.6	.945	.946	.947	.948	.949	.951	.952	.953	.954	.954	1.6
1.7	.955	.956	.957	.958	.959	.960	.961	.962	.962	.963	1.7
1.8	.964	.965	.966	.966	.967	.968	.969	.969	.970	.971	1.8
1.9	.971	.972	.973	.973	.974	.974	.975	.976	.976	.977	1.9
2.0	.977	.978	.978	.979	.979	.980	.981	.981	.981	.982	2.0
2.1	.982	.983	.983	.983	.984	.984	.985	.985	.985	.986	2.1
2.2	.986	.986	.987	.987	.987	.988	.988	.988	.989	.989	2.2
2.3	.989	.990	.990	.990	.990	.991	.991	.991	.991	.992	2.3
2.4	.992	.992	.992	.992	.993	.993	.993	.993	.993	.994	2.4
2.5	.994	.994	.994	.994	.994	.995	.995	.995	.995	.995	2.5
2.6	.995	.995	.996	.996	.996	.996	.996	.996	.996	.996	2.6
2.7	.997	.997	.997	.997	.997	.997	.997	.997	.997	.997	2.7
2.8	.997	.998	.998	.998	.998	.998	.998	.998	.998	.998	2.8
2.9	.998	.998	.998	.998	.998	.998	.998	.999	.999	.999	2.9
3.0	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	3.0
	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09	

F_Z table

	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09
0.0	.500	.504	.508	.512	.516	.520	.524	.528	.532	.536
0.1	.540	.544	.548	.552	.556	.560	.564	.567	.571	.575
0.2	.579	.583	.587	.591	.595	.599	.603	.606	.610	.614
0.3	.618	.622	.626	.629	.633	.637	.641	.644	.648	.652
0.4	.655	.659	.663	.666	.670	.674	.677	.681	.684	.688
0.5	.691	.695	.698	.702	.705	.709	.712	.716	.719	.722
0.6	.726	.729	.732	.736	.739	.742	.745	.749	.752	.755
0.7	.758	.761	.764	.767	.770	.773	.776	.779	.782	.785
0.8	.788	.791	.794	.797	.800	.802	.805	.808	.811	.813
0.9	.816	.819	.821	.824	.826	.829	.831	.834	.836	.839
1.0	.841	.844	.846	.848	.851	.853	.855	.858	.860	.862
1.1	.864	.867	.869	.871	.873	.875	.877	.879	.881	.883
1.2	.885	.887	.889	.891	.893	.894	.896	.898	.900	.901
1.3	.903	.905	.907	.908	.910	.911	.913	.915	.916	.918
1.4	.919	.921	.922	.924	.925	.926	.928	.929	.931	.932
1.5	.933	.934	.936	.937	.938	.939	.941	.942	.943	.944
1.6	.945	.946	.947	.948	.949	.951	.952	.953	.954	.954
1.7	.955	.956	.957	.958	.959	.960	.961	.962	.962	.963
1.8	.964	.965	.966	.966	.967	.968	.969	.969	.970	.971
1.9	.971	.972	.973	.973	.974	.974	.975	.976	.976	.977
2.0	.977	.978	.978	.979	.979	.980	.980	.981	.981	.982
2.1	.982	.983	.983	.983	.984	.984	.985	.985	.985	.986
2.2	.986	.986	.987	.987	.987	.988	.988	.988	.989	.989
2.3	.989	.990	.990	.990	.990	.991	.991	.991	.991	.992
2.4	.992	.992	.992	.992	.993	.993	.993	.993	.993	.994
2.5	.994	.994	.994	.994	.994	.995	.995	.995	.995	.995
2.6	.995	.995	.996	.996	.996	.996	.996	.996	.996	.996
2.7	.997	.997	.997	.997	.997	.997	.997	.997	.997	.997
2.8	.997	.998	.998	.998	.998	.998	.998	.998	.998	.998
2.9	.998	.998	.998	.998	.998	.998	.998	.999	.999	.999
3.0	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999
	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09