DISTRIBUCION NORMAL

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Función de probabilidad:

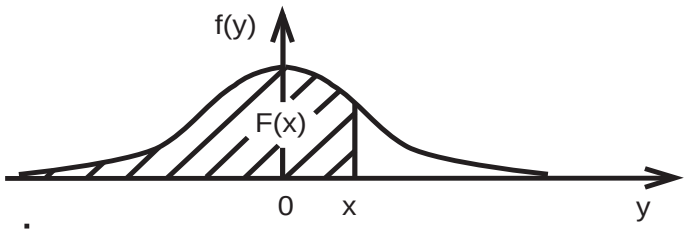
$$p(x) \;=\; \frac{1}{\sqrt{(2\pi)\cdot\sigma}} exp\Big[-\frac{(x-\mu)^2}{2\sigma^2}\Big] \qquad para\ x \in (-\infty, +\infty)$$

Espacio paramétrico: $media\ \mu \in (-\infty, +\infty)$ $varianza\ \sigma^2 \in (0, +\infty)$

Valor esperado: μ

Varianza: σ^2

Función generadora de momentos: $e^{(\mu t + \sigma^2 t^2/2)}$



DISTRIBUCION NORMAL ESTANDAR

Es un caso especial de la normal, en que $\mu = 0$ y $\sigma^2 = 1$.

Función de densidad:

$$f(x) \;=\; \frac{1}{\sqrt{(2\pi)}} exp\Big[-\frac{x^2}{2}\Big] \qquad para\ x \in (-\infty, +\infty)$$

Valor esperado: 0

Varianza: 1

Función generadora de momentos: $e^{t^2/2}$

RELACION CON LA NORMAL ESTANDAR

Los valores de la función de distribución de la normal con parámetros μ y σ^2 se obtienen de la tabla de distribución **normal standard** (en que $\mu = 0$ y $\sigma^2 = 1$) como se muestra a continuación. Por esa razón sólo se entrega la tabla de la **normal standard**.

Si se requiere la probabilidad acumulada hasta la cuantila x, se efectúa la transformación $z = \frac{x-\mu}{\sigma}$ y se busca la probabilidad asociada a la cuantila z en la tabla de distribución **normal standard**.

Al revés, si se quiere saber a qué cuantila corresponde una probabilidad acumulada dada, $F(z)$, se busca la cuantila z asociada a $F(z)$ en la tabla de distribución **normal standard**. Entonces la correspondiente cuantila de la normal con parámetros μ y σ^2 es $x = \sigma z + \mu$.

TABLA DE DISTRIBUCION NORMAL ESTANDAR

La tabla entrega valores de la función de distribución (probabilidad acumulada) de la **normal standard**, es decir, valores de $F(z) = \int_{-\infty}^{z} f(y)dy$.
La cuantila z toma valores entre -4 y +4 variando en 0.005.
El entero y el primer decimal aparecen en el margen izquierdo. Los dos últimos decimales en el margen superior. Las probabilidades acumuladas aparecen en el cuerpo de la tabla.

TABLA DE DISTRIBUCION NORMAL

Cuantiles negativos

z	-95	-90	-85	-80	-75	-70	-65	-60	-55	-50
-4.0	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000
-3.9	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000
-3.8	.0000	.0001	.0001	.0001	.0001	.0001	.0001	.0001	.0001	.0001
-3.7	.0001	.0001	.0001	.0001	.0001	.0001	.0001	.0001	.0001	.0001
-3.6	.0001	.0001	.0001	.0001	.0001	.0001	.0001	.0001	.0001	.0001
-3.5	.0002	.0002	.0002	.0002	.0002	.0002	.0002	.0002	.0002	.0002
-3.4	.0002	.0002	.0002	.0003	.0003	.0003	.0003	.0003	.0003	.0003
-3.3	.0003	.0003	.0004	.0004	.0004	.0004	.0004	.0004	.0004	.0004
-3.2	.0005	.0005	.0005	.0005	.0005	.0005	.0005	.0006	.0006	.0006
-3.1	.0007	.0007	.0007	.0007	.0007	.0008	.0008	.0008	.0008	.0008
-3.0	.0010	.0010	.0010	.0010	.0011	.0011	.0011	.0011	.0011	.0011
-2.9	.0014	.0014	.0014	.0014	.0015	.0015	.0015	.0015	.0016	.0016
-2.8	.0019	.0019	.0020	.0020	.0020	.0021	.0021	.0021	.0022	.0022
-2.7	.0026	.0026	.0027	.0027	.0028	.0028	.0028	.0029	.0029	.0030
-2.6	.0035	.0036	.0036	.0037	.0037	.0038	.0038	.0039	.0040	.0040
-2.5	.0047	.0048	.0049	.0049	.0050	.0051	.0052	.0052	.0053	.0054
-2.4	.0063	.0064	.0065	.0066	.0067	.0068	.0069	.0069	.0070	.0071
-2.3	.0083	.0084	.0085	.0087	.0088	.0089	.0090	.0091	.0093	.0094
-2.2	.0109	.0110	.0112	.0113	.0115	.0116	.0118	.0119	.0121	.0122
-2.1	.0141	.0143	.0144	.0146	.0148	.0150	.0152	.0154	.0156	.0158
-2.0	.0181	.0183	.0185	.0188	.0190	.0192	.0195	.0197	.0199	.0202
-1.9	.0230	.0233	.0236	.0239	.0241	.0244	.0247	.0250	.0253	.0256
-1.8	.0290	.0294	.0297	.0301	.0304	.0307	.0311	.0314	.0318	.0322
-1.7	.0363	.0367	.0371	.0375	.0379	.0384	.0388	.0392	.0396	.0401
-1.6	.0450	.0455	.0460	.0465	.0470	.0475	.0480	.0485	.0490	.0495
-1.5	.0554	.0559	.0565	.0571	.0576	.0582	.0588	.0594	.0600	.0606
-1.4	.0675	.0681	.0688	.0694	.0701	.0708	.0715	.0721	.0728	.0735
-1.3	.0815	.0823	.0830	.0838	.0846	.0853	.0861	.0869	.0877	.0885
-1.2	.0977	.0985	.0994	.1003	.1012	.1020	.1029	.1038	.1047	.1056
-1.1	.1160	.1170	.1180	.1190	.1200	.1210	.1220	.1230	.1240	.1251
-1.0	.1368	.1379	.1390	.1401	.1412	.1423	.1434	.1446	.1457	.1469
-0.9	.1599	.1611	.1623	.1635	.1648	.1660	.1673	.1685	.1698	.1711
-0.8	.1854	.1867	.1881	.1894	.1908	.1922	.1935	.1949	.1963	.1977
-0.7	.2133	.2148	.2162	.2177	.2192	.2206	.2221	.2236	.2251	.2266
-0.6	.2435	.2451	.2467	.2483	.2498	.2514	.2530	.2546	.2562	.2578
-0.5	.2759	.2776	.2793	.2810	.2826	.2843	.2860	.2877	.2894	.2912
-0.4	.3103	.3121	.3138	.3156	.3174	.3192	.3210	.3228	.3246	.3264
-0.3	.3464	.3483	.3501	.3520	.3538	.3557	.3576	.3594	.3613	.3632
-0.2	.3840	.3859	.3878	.3897	.3917	.3936	.3955	.3974	.3994	.4013
-0.1	.4227	.4247	.4266	.4286	.4305	.4325	.4345	.4364	.4384	.4404
-0.0	.4622	.4641	.4661	.4681	.4701	.4721	.4741	.4761	.4781	.4801

DISTRIBUCION NORMAL (2)

Cuantiles negativos

z	-45	-40	-35	-30	-25	-20	-15	-10	-05	-00
-4.0	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000
-3.9	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000
-3.8	.0001	.0001	.0001	.0001	.0001	.0001	.0001	.0001	.0001	.0001
-3.7	.0001	.0001	.0001	.0001	.0001	.0001	.0001	.0001	.0001	.0001
-3.6	.0001	.0001	.0001	.0001	.0001	.0001	.0002	.0002	.0002	.0002
-3.5	.0002	.0002	.0002	.0002	.0002	.0002	.0002	.0002	.0002	.0002
-3.4	.0003	.0003	.0003	.0003	.0003	.0003	.0003	.0003	.0003	.0003
-3.3	.0004	.0004	.0004	.0004	.0004	.0005	.0005	.0005	.0005	.0005
-3.2	.0006	.0006	.0006	.0006	.0006	.0006	.0007	.0007	.0007	.0007
-3.1	.0008	.0008	.0009	.0009	.0009	.0009	.0009	.0009	.0010	.0010
-3.0	.0012	.0012	.0012	.0012	.0012	.0013	.0013	.0013	.0013	.0013
-2.9	.0016	.0016	.0017	.0017	.0017	.0018	.0018	.0018	.0018	.0019
-2.8	.0022	.0023	.0023	.0023	.0024	.0024	.0024	.0025	.0025	.0026
-2.7	.0030	.0031	.0031	.0032	.0032	.0033	.0033	.0034	.0034	.0035
-2.6	.0041	.0041	.0042	.0043	.0043	.0044	.0045	.0045	.0046	.0047
-2.5	.0055	.0055	.0056	.0057	.0058	.0059	.0060	.0060	.0061	.0062
-2.4	.0072	.0073	.0074	.0075	.0077	.0078	.0079	.0080	.0081	.0082
-2.3	.0095	.0096	.0098	.0099	.0100	.0102	.0103	.0104	.0106	.0107
-2.2	.0124	.0125	.0127	.0129	.0130	.0132	.0134	.0136	.0137	.0139
-2.1	.0160	.0162	.0164	.0166	.0168	.0170	.0172	.0174	.0176	.0179
-2.0	.0204	.0207	.0209	.0212	.0214	.0217	.0220	.0222	.0225	.0228
-1.9	.0259	.0262	.0265	.0268	.0271	.0274	.0277	.0281	.0284	.0287
-1.8	.0325	.0329	.0333	.0336	.0340	.0344	.0348	.0351	.0355	.0359
-1.7	.0405	.0409	.0414	.0418	.0423	.0427	.0432	.0436	.0441	.0446
-1.6	.0500	.0505	.0510	.0516	.0521	.0526	.0532	.0537	.0542	.0548
-1.5	.0612	.0618	.0624	.0630	.0636	.0643	.0649	.0655	.0662	.0668
-1.4	.0742	.0749	.0756	.0764	.0771	.0778	.0785	.0793	.0800	.0808
-1.3	.0893	.0901	.0909	.0918	.0926	.0934	.0943	.0951	.0959	.0968
-1.2	.1066	.1075	.1084	.1093	.1103	.1112	.1122	.1131	.1141	.1151
-1.1	.1261	.1271	.1282	.1292	.1303	.1314	.1324	.1335	.1346	.1357
-1.0	.1480	.1492	.1503	.1515	.1527	.1539	.1551	.1562	.1574	.1587
-0.9	.1723	.1736	.1749	.1762	.1775	.1788	.1801	.1814	.1827	.1841
-0.8	.1991	.2005	.2019	.2033	.2047	.2061	.2075	.2090	.2104	.2119
-0.7	.2281	.2297	.2312	.2327	.2342	.2358	.2373	.2389	.2404	.2420
-0.6	.2595	.2611	.2627	.2643	.2660	.2676	.2693	.2709	.2726	.2743
-0.5	.2929	.2946	.2963	.2981	.2998	.3015	.3033	.3050	.3068	.3085
-0.4	.3282	.3300	.3318	.3336	.3354	.3372	.3391	.3409	.3427	.3446
-0.3	.3650	.3669	.3688	.3707	.3726	.3745	.3764	.3783	.3802	.3821
-0.2	.4032	.4052	.4071	.4090	.4110	.4129	.4149	.4168	.4188	.4207
-0.1	.4424	.4443	.4463	.4483	.4503	.4522	.4542	.4562	.4582	.4602
-0.0	.4821	.4840	.4860	.4880	.4900	.4920	.4940	.4960	.4980	.5000

DISTRIBUCION NORMAL (3)

Cuantiles positivos

z	00	05	10	15	20	25	30	35	40	45
0.0	.5000	.5020	.5040	.5060	.5080	.5100	.5120	.5140	.5160	.5179
0.1	.5398	.5418	.5438	.5458	.5478	.5497	.5517	.5537	.5557	.5576
0.2	.5793	.5812	.5832	.5851	.5871	.5890	.5910	.5929	.5948	.5968
0.3	.6179	.6198	.6217	.6236	.6255	.6274	.6293	.6312	.6331	.6350
0.4	.6554	.6573	.6591	.6609	.6628	.6646	.6664	.6682	.6700	.6718
0.5	.6915	.6932	.6950	.6967	.6985	.7002	.7019	.7037	.7054	.7071
0.6	.7257	.7274	.7291	.7307	.7324	.7340	.7357	.7373	.7389	.7405
0.7	.7580	.7596	.7611	.7627	.7642	.7658	.7673	.7688	.7703	.7719
0.8	.7881	.7896	.7910	.7925	.7939	.7953	.7967	.7981	.7995	.8009
0.9	.8159	.8173	.8186	.8199	.8212	.8225	.8238	.8251	.8264	.8277
1.0	.8413	.8426	.8438	.8449	.8461	.8473	.8485	.8497	.8508	.8520
1.1	.8643	.8654	.8665	.8676	.8686	.8697	.8708	.8718	.8729	.8739
1.2	.8849	.8859	.8869	.8878	.8888	.8897	.8907	.8916	.8925	.8934
1.3	.9032	.9041	.9049	.9057	.9066	.9074	.9082	.9091	.9099	.9107
1.4	.9192	.9200	.9207	.9215	.9222	.9229	.9236	.9244	.9251	.9258
1.5	.9332	.9338	.9345	.9351	.9357	.9364	.9370	.9376	.9382	.9388
1.6	.9452	.9458	.9463	.9468	.9474	.9479	.9484	.9490	.9495	.9500
1.7	.9554	.9559	.9564	.9568	.9573	.9577	.9582	.9586	.9591	.9595
1.8	.9641	.9645	.9649	.9652	.9656	.9660	.9664	.9667	.9671	.9675
1.9	.9713	.9716	.9719	.9723	.9726	.9729	.9732	.9735	.9738	.9741
2.0	.9772	.9775	.9778	.9780	.9783	.9786	.9788	.9791	.9793	.9796
2.1	.9821	.9824	.9826	.9828	.9830	.9832	.9834	.9836	.9838	.9840
2.2	.9861	.9863	.9864	.9866	.9868	.9870	.9871	.9873	.9875	.9876
2.3	.9893	.9894	.9896	.9897	.9898	.9900	.9901	.9902	.9904	.9905
2.4	.9918	.9919	.9920	.9921	.9922	.9923	.9925	.9926	.9927	.9928
2.5	.9938	.9939	.9940	.9940	.9941	.9942	.9943	.9944	.9945	.9945
2.6	.9953	.9954	.9955	.9955	.9956	.9957	.9957	.9958	.9959	.9959
2.7	.9965	.9966	.9966	.9967	.9967	.9968	.9968	.9969	.9969	.9970
2.8	.9974	.9975	.9975	.9976	.9976	.9976	.9977	.9977	.9977	.9978
2.9	.9981	.9982	.9982	.9982	.9982	.9983	.9983	.9983	.9984	.9984
3.0	.9987	.9987	.9987	.9987	.9987	.9988	.9988	.9988	.9988	.9988
3.1	.9990	.9990	.9991	.9991	.9991	.9991	.9991	.9991	.9992	.9992
3.2	.9993	.9993	.9993	.9993	.9994	.9994	.9994	.9994	.9994	.9994
3.3	.9995	.9995	.9995	.9995	.9995	.9996	.9996	.9996	.9996	.9996
3.4	.9997	.9997	.9997	.9997	.9997	.9997	.9997	.9997	.9997	.9997
3.5	.9998	.9998	.9998	.9998	.9998	.9998	.9998	.9998	.9998	.9998
3.6	.9998	.9998	.9998	.9998	.9999	.9999	.9999	.9999	.9999	.9999
3.7	.9999	.9999	.9999	.9999	.9999	.9999	.9999	.9999	.9999	.9999
3.8	.9999	.9999	.9999	.9999	.9999	.9999	.9999	.9999	.9999	.9999
3.9	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
4.0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

DISTRIBUCION NORMAL (4)

Cuantiles positivos

z	50	55	60	65	70	75	80	85	90	95
0.0	.5199	.5219	.5239	.5259	.5279	.5299	.5319	.5339	.5359	.5378
0.1	.5596	.5616	.5636	.5655	.5675	.5695	.5714	.5734	.5753	.5773
0.2	.5987	.6006	.6026	.6045	.6064	.6083	.6103	.6122	.6141	.6160
0.3	.6368	.6387	.6406	.6424	.6443	.6462	.6480	.6499	.6517	.6536
0.4	.6736	.6754	.6772	.6790	.6808	.6826	.6844	.6862	.6879	.6897
0.5	.7088	.7106	.7123	.7140	.7157	.7174	.7190	.7207	.7224	.7241
0.6	.7422	.7438	.7454	.7470	.7486	.7502	.7517	.7533	.7549	.7565
0.7	.7734	.7749	.7764	.7779	.7794	.7808	.7823	.7838	.7852	.7867
0.8	.8023	.8037	.8051	.8065	.8078	.8092	.8106	.8119	.8133	.8146
0.9	.8289	.8302	.8315	.8327	.8340	.8352	.8365	.8377	.8389	.8401
1.0	.8531	.8543	.8554	.8566	.8577	.8588	.8599	.8610	.8621	.8632
1.1	.8749	.8760	.8770	.8780	.8790	.8800	.8810	.8820	.8830	.8840
1.2	.8944	.8953	.8962	.8971	.8980	.8988	.8997	.9006	.9015	.9023
1.3	.9115	.9123	.9131	.9139	.9147	.9154	.9162	.9170	.9177	.9185
1.4	.9265	.9272	.9279	.9285	.9292	.9299	.9306	.9312	.9319	.9325
1.5	.9394	.9400	.9406	.9412	.9418	.9424	.9429	.9435	.9441	.9446
1.6	.9505	.9510	.9515	.9520	.9525	.9530	.9535	.9540	.9545	.9550
1.7	.9599	.9604	.9608	.9612	.9616	.9621	.9625	.9629	.9633	.9637
1.8	.9678	.9682	.9686	.9689	.9693	.9696	.9699	.9703	.9706	.9710
1.9	.9744	.9747	.9750	.9753	.9756	.9759	.9761	.9764	.9767	.9770
2.0	.9798	.9801	.9803	.9805	.9808	.9810	.9812	.9815	.9817	.9819
2.1	.9842	.9844	.9846	.9848	.9850	.9852	.9854	.9856	.9857	.9859
2.2	.9878	.9879	.9881	.9882	.9884	.9885	.9887	.9888	.9890	.9891
2.3	.9906	.9907	.9909	.9910	.9911	.9912	.9913	.9915	.9916	.9917
2.4	.9929	.9930	.9931	.9931	.9932	.9933	.9934	.9935	.9936	.9937
2.5	.9946	.9947	.9948	.9948	.9949	.9950	.9951	.9951	.9952	.9953
2.6	.9960	.9960	.9961	.9962	.9962	.9963	.9963	.9964	.9964	.9965
2.7	.9970	.9971	.9971	.9972	.9972	.9972	.9973	.9973	.9974	.9974
2.8	.9978	.9978	.9979	.9979	.9979	.9980	.9980	.9980	.9981	.9981
2.9	.9984	.9984	.9985	.9985	.9985	.9985	.9986	.9986	.9986	.9986
3.0	.9989	.9989	.9989	.9989	.9989	.9989	.9990	.9990	.9990	.9990
3.1	.9992	.9992	.9992	.9992	.9992	.9993	.9993	.9993	.9993	.9993
3.2	.9994	.9994	.9994	.9995	.9995	.9995	.9995	.9995	.9995	.9995
3.3	.9996	.9996	.9996	.9996	.9996	.9996	.9996	.9996	.9997	.9997
3.4	.9997	.9997	.9997	.9997	.9997	.9997	.9997	.9998	.9998	.9998
3.5	.9998	.9998	.9998	.9998	.9998	.9998	.9998	.9998	.9998	.9998
3.6	.9999	.9999	.9999	.9999	.9999	.9999	.9999	.9999	.9999	.9999
3.7	.9999	.9999	.9999	.9999	.9999	.9999	.9999	.9999	.9999	.9999
3.8	.9999	.9999	.9999	.9999	.9999	.9999	.9999	.9999	.9999	1.0000
3.9	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
4.0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000