

ASTROİSTATİSTİK
FORMÜL KAĞIDI VE Z ÇİZELGESİ

$$[SG] = \frac{X_{\text{En Büyük}} - X_{\text{En Küçük}}}{k}$$

$$bf_i = \sum_{j=0}^i f_j$$

$$of_i = \frac{f_i}{n}$$

$$HO = \frac{n}{\sum_{i=1}^n \frac{1}{x_i}}$$

$$GO = \sqrt[n]{\prod_{i=1}^n x_i}$$

$$OMS = \frac{\sum_{i=0}^n |x_i - \bar{x}|}{n}$$

$$\zeta_{AA} = \zeta_3 - \zeta_1$$

$$\mu_r(a) = \frac{\sum_{i=1}^N (x_i - a)^r}{N}$$

$$\mu_r = \frac{\sum_{i=1}^N (x_i - \mu)^r}{N}$$

$$\zeta = \frac{\mu_3}{\sigma^3}$$

$$b = \frac{\mu_4}{\sigma^4} - 3$$

$$\zeta_{mod} = \frac{[\text{ortalama}] - [\text{mod}]}{\sigma}$$

$$\zeta_{medyan} = \frac{3([\text{ortalama}] - [\text{medyan}])}{\sigma}$$

$$N = \sum_{i=1}^k f_i$$

$$n = \sum_{i=1}^k f_i$$

$$\mu = \frac{\sum_{i=1}^N x_i}{N}$$

$$\mu = \frac{\sum_{i=1}^k f_i \hat{x}_i}{N}$$

$$\bar{x} = \frac{\sum_{i=1}^n x_i}{n}$$

$$\bar{x} = \frac{\sum_{i=1}^k f_i \hat{x}_i}{n}$$

$$MOD \approx L_{mod} + c \cdot \left(\frac{\Delta_1}{\Delta_1 + \Delta_2} \right)$$

$$MED \approx L_{med} + c \cdot \left(\frac{\frac{N}{2} - \sum_{i=1}^{i_{med}-1} f_i}{f_{med}} \right)$$

$$MED \approx L_{med} + c \cdot \left(\frac{\frac{n}{2} - \sum_{i=1}^{i_{med}-1} f_i}{f_{med}} \right)$$

$$\sigma^2 = \frac{\sum_{i=1}^N (x_i - \mu)^2}{N}$$

$$\sigma^2 = \frac{\sum_{i=1}^k f_i (\hat{x}_i - \mu)^2}{N}$$

$$s^2 = \frac{\sum_{i=1}^n (x_i - \bar{x})^2}{n-1}$$

$$s^2 = \frac{\sum_{i=1}^k f_i (\hat{x}_i - \bar{x})^2}{n-1}$$

$$\sigma = \sqrt{\frac{\sum_{i=1}^N (x_i - \mu)^2}{N}}$$

$$\sigma = \sqrt{\frac{\sum_{i=1}^k f_i (\hat{x}_i - \mu)^2}{N}}$$

$$s = \sqrt{\frac{\sum_{i=1}^n (x_i - \bar{x})^2}{n-1}}$$

$$s = \sqrt{\frac{\sum_{i=1}^k f_i (\hat{x}_i - \bar{x})^2}{n-1}}$$

$$\zeta = \frac{\sum_{i=1}^N (x_i - \mu)^3}{N \sigma^3}$$

$$\zeta = \frac{\sum_{i=1}^k f_i (\hat{x}_i - \mu)^3}{N \sigma^3}$$

$$\zeta = \frac{n}{(n-1)(n-2)} \cdot \frac{\sum_{i=1}^n (x_i - \bar{x})^3}{s^3}$$

$$\zeta = \frac{n}{(n-1)(n-2)} \cdot \frac{\sum_{i=1}^k f_i (\hat{x}_i - \bar{x})^3}{s^3}$$

$$b = \frac{\sum_{i=1}^N (x_i - \mu)^4}{N \sigma^4} - 3$$

$$b = \frac{\sum_{i=1}^k f_i (\hat{x}_i - \mu)^4}{N \sigma^4} - 3$$

$$b = \frac{n(n+1)}{(n-1)(n-2)(n-3)} \cdot \frac{\sum_{i=1}^n (x_i - \bar{x})^4}{s^4} - 3 \frac{(n-1)^2}{(n-2)(n-3)}$$

$$b = \frac{n(n+1)}{(n-1)(n-2)(n-3)} \cdot \frac{\sum_{i=1}^k f_i (\hat{x}_i - \bar{x})^4}{s^4} - 3 \frac{(n-1)^2}{(n-2)(n-3)}$$

$$SH \approx \sqrt{\frac{\sum_{i=1}^n (x_i - \bar{x})^2}{n(n-1)}}$$

$$SH = \sqrt{\frac{\sum_{i=1}^N (x_i - \mu)^2}{N^2}}$$

$$\sigma_f(\sigma_x, \sigma_y, \sigma_z) = \sqrt{\left(\frac{\partial f}{\partial x} \sigma_x \right)^2 + \left(\frac{\partial f}{\partial y} \sigma_y \right)^2 + \left(\frac{\partial f}{\partial z} \sigma_z \right)^2}$$

$$SH \approx \frac{s}{\sqrt{n}}$$

$$SH = \frac{\sigma}{\sqrt{N}}$$

$$AO = \frac{\sum_{i=1}^n (w_i x_i)}{\sum_{i=1}^n w_i}$$

$$w_i = \frac{1}{s_i^2}$$

$$w_i' = \frac{w_i}{\sum_{i=1}^n w_i}$$

$$AO = \sum_{i=1}^n (w_i' x_i)$$

$$s_{AO} \approx \sqrt{\frac{1}{\sum_{i=1}^n w_i}} = \sqrt{\frac{1}{\sum_{i=1}^n s_i^{-2}}}$$

$$P(A|B) = \frac{P(A \cap B)}{P(B)}$$

$$\mu = Np$$

$$\sigma^2 = Npq$$

$$\sigma = \sqrt{Npq}$$

$$\zeta = \frac{q-p}{\sqrt{Npq}}$$

$$P(x) = \binom{N}{x} \cdot p^x \cdot q^{(N-x)}$$

$$P_\lambda(x) = \frac{e^{-\lambda} \lambda^x}{x!}$$

$$\sigma^2 = \lambda = Np$$

$$\sigma = \sqrt{Np}$$

$$N(x) = \frac{1}{\sigma \sqrt{2\pi}} e^{-\frac{1}{2} \left(\frac{x-\mu}{\sigma} \right)^2}$$

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

$$KT_x = \sum_{i=1}^n (x_i - \bar{x})^2$$

$$KT_y = \sum_{i=1}^n (y_i - \bar{y})^2$$

$$\zeta T_{xy} = \sum_{i=1}^n (x_i - \bar{x})(y_i - \bar{y})$$

$$r = \frac{\zeta T_{xy}}{\sqrt{KT_x KT_y}}$$

$$a = \frac{D_a}{D}$$

$$b = \frac{D_b}{D}$$

$$c = \frac{D_c}{D}$$

z	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09
-3.4	.0003	.0003	.0003	.0003	.0003	.0003	.0003	.0003	.0003	.0002
-3.3	.0005	.0005	.0005	.0004	.0004	.0004	.0004	.0004	.0004	.0003
-3.2	.0007	.0007	.0006	.0006	.0006	.0006	.0006	.0005	.0005	.0005
-3.1	.0010	.0009	.0009	.0009	.0008	.0008	.0008	.0008	.0007	.0007
-3.0	.0013	.0013	.0013	.0012	.0012	.0011	.0011	.0011	.0010	.0010
-2.9	.0019	.0018	.0018	.0017	.0016	.0016	.0015	.0015	.0014	.0014
-2.8	.0026	.0025	.0024	.0023	.0023	.0022	.0021	.0021	.0020	.0019
-2.7	.0035	.0034	.0033	.0032	.0031	.0030	.0029	.0028	.0027	.0026
-2.6	.0047	.0045	.0044	.0043	.0041	.0040	.0039	.0038	.0037	.0036
-2.5	.0062	.0060	.0059	.0057	.0055	.0054	.0052	.0051	.0049	.0048
-2.4	.0082	.0080	.0078	.0075	.0073	.0071	.0069	.0068	.0066	.0064
-2.3	.0107	.0104	.0102	.0099	.0096	.0094	.0091	.0089	.0087	.0084
-2.2	.0139	.0136	.0132	.0129	.0125	.0122	.0119	.0116	.0113	.0110
-2.1	.0179	.0174	.0170	.0166	.0162	.0158	.0154	.0150	.0146	.0143
-2.0	.0228	.0222	.0217	.0212	.0207	.0202	.0197	.0192	.0188	.0183
-1.9	.0287	.0281	.0274	.0268	.0262	.0256	.0250	.0244	.0239	.0233
-1.8	.0359	.0351	.0344	.0336	.0329	.0322	.0314	.0307	.0301	.0294
-1.7	.0446	.0436	.0427	.0418	.0409	.0401	.0392	.0384	.0375	.0367
-1.6	.0548	.0537	.0526	.0516	.0505	.0495	.0485	.0475	.0465	.0455
-1.5	.0668	.0655	.0643	.0630	.0618	.0606	.0594	.0582	.0571	.0559
-1.4	.0808	.0793	.0778	.0764	.0749	.0735	.0721	.0708	.0694	.0681
-1.3	.0968	.0951	.0934	.0918	.0901	.0885	.0869	.0853	.0838	.0823
-1.2	.1151	.1131	.1112	.1093	.1075	.1056	.1038	.1020	.1003	.0985
-1.1	.1357	.1335	.1314	.1292	.1271	.1251	.1230	.1210	.1190	.1170
-1.0	.1587	.1562	.1539	.1515	.1492	.1469	.1446	.1423	.1401	.1379
-0.9	.1841	.1814	.1788	.1762	.1736	.1711	.1685	.1660	.1635	.1611
-0.8	.2119	.2090	.2061	.2033	.2005	.1977	.1949	.1922	.1894	.1867
-0.7	.2420	.2389	.2358	.2327	.2296	.2266	.2236	.2206	.2177	.2148
-0.6	.2743	.2709	.2676	.2643	.2611	.2578	.2546	.2514	.2483	.2451
-0.5	.3085	.3050	.3015	.2981	.2946	.2912	.2877	.2843	.2810	.2776
-0.4	.3446	.3409	.3372	.3336	.3300	.3264	.3228	.3192	.3156	.3121
-0.3	.3821	.3783	.3745	.3707	.3669	.3632	.3594	.3557	.3520	.3483
-0.2	.4207	.4168	.4129	.4090	.4052	.4013	.3974	.3936	.3897	.3859
-0.1	.4602	.4562	.4522	.4483	.4443	.4404	.4364	.4325	.4286	.4247
-0.0	.5000	.4960	.4920	.4880	.4840	.4801	.4761	.4721	.4681	.4641

z	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09
0.0	.5000	.5040	.5080	.5120	.5160	.5199	.5239	.5279	.5319	.5359
0.1	.5398	.5438	.5478	.5517	.5557	.5596	.5636	.5675	.5714	.5753
0.2	.5793	.5832	.5871	.5910	.5948	.5987	.6026	.6064	.6103	.6141
0.3	.6179	.6217	.6255	.6293	.6331	.6368	.6406	.6443	.6480	.6517
0.4	.6554	.6591	.6628	.6664	.6700	.6736	.6772	.6808	.6844	.6879
0.5	.6915	.6950	.6985	.7019	.7054	.7088	.7123	.7157	.7190	.7224
0.6	.7257	.7291	.7324	.7357	.7389	.7422	.7454	.7486	.7517	.7549
0.7	.7580	.7611	.7642	.7673	.7704	.7734	.7764	.7794	.7823	.7852
0.8	.7881	.7910	.7939	.7967	.7995	.8023	.8051	.8078	.8106	.8133
0.9	.8159	.8186	.8212	.8238	.8264	.8289	.8315	.8340	.8365	.8389
1.0	.8413	.8438	.8461	.8485	.8508	.8531	.8554	.8577	.8599	.8621
1.1	.8643	.8665	.8686	.8708	.8729	.8749	.8770	.8790	.8810	.8830
1.2	.8849	.8869	.8888	.8907	.8925	.8944	.8962	.8980	.8997	.9015
1.3	.9032	.9049	.9066	.9082	.9099	.9115	.9131	.9147	.9162	.9177
1.4	.9192	.9207	.9222	.9236	.9251	.9265	.9279	.9292	.9306	.9319
1.5	.9332	.9345	.9357	.9370	.9382	.9394	.9406	.9418	.9429	.9441
1.6	.9452	.9463	.9474	.9484	.9495	.9505	.9515	.9525	.9535	.9545
1.7	.9554	.9564	.9573	.9582	.9591	.9599	.9608	.9616	.9625	.9633
1.8	.9641	.9649	.9656	.9664	.9671	.9678	.9686	.9693	.9699	.9706
1.9	.9713	.9719	.9726	.9732	.9738	.9744	.9750	.9756	.9761	.9767
2.0	.9772	.9778	.9783	.9788	.9793	.9798	.9803	.9808	.9812	.9817
2.1	.9821	.9826	.9830	.9834	.9838	.9842	.9846	.9850	.9854	.9857
2.2	.9861	.9864	.9868	.9871	.9875	.9878	.9881	.9884	.9887	.9890
2.3	.9893	.9896	.9898	.9901	.9904	.9906	.9909	.9911	.9913	.9916
2.4	.9918	.9920	.9922	.9925	.9927	.9929	.9931	.9932	.9934	.9936
2.5	.9938	.9940	.9941	.9943	.9945	.9946	.9948	.9949	.9951	.9952
2.6	.9953	.9955	.9956	.9957	.9959	.9960	.9961	.9962	.9963	.9964
2.7	.9965	.9966	.9967	.9968	.9969	.9970	.9971	.9972	.9973	.9974
2.8	.9974	.9975	.9976	.9977	.9977	.9978	.9979	.9979	.9980	.9981
2.9	.9981	.9982	.9982	.9983	.9984	.9984	.9985	.9985	.9986	.9986
3.0	.9987	.9987	.9987	.9988	.9988	.9989	.9989	.9989	.9990	.9990
3.1	.9990	.9991	.9991	.9991	.9992	.9992	.9992	.9992	.9993	.9993
3.2	.9993	.9993	.9994	.9994	.9994	.9994	.9994	.9995	.9995	.9995
3.3	.9995	.9995	.9995	.9996	.9996	.9996	.9996	.9996	.9996	.9997
3.4	.9997	.9997	.9997	.9997	.9997	.9997	.9997	.9997	.9997	.9998

Bu çizelge normal dağılımda verilen z değerinin solunda kalan alanı verir.