

Examples for Chapter 16

Eks 1. Forholdstal mellom høgde/lengde for 8 rektangel funne på lærvarer hos Shoshoni indianarane.

0.693 0.662 0.690 0.606 0.570 0.749 0.672 0.628

Wilcoxon Signed Rank Test

Test of median = 0.6180 versus median not = 0.6180

	N	N for Test	Wilcoxon Statistic	P	Estimated Median
h/l	8	8	30.0	0.107	0.6600

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Eks 2. Samanlikning av drivstofføkonomi med radial dekk og beltedekk. Tala er gitt i kilometer pr liter. Eks 16.2

Row	radial	belte	C4
1	4.2	4.1	0.1
2	4.7	4.9	-0.2
3	6.6	6.2	0.4
4	7.0	6.9	0.1
5	6.7	6.8	-0.1
6	4.5	4.4	0.1
7	5.7	5.7	0.0
8	6.0	5.8	0.2
9	7.4	6.9	0.5
10	4.9	4.9	0.0
11	6.1	6.0	0.1
12	5.2	4.9	0.3
13	5.7	5.3	0.4
14	6.9	6.5	0.4
15	6.8	7.1	-0.3
16	4.9	4.8	0.1

Wilcoxon Signed Rank Test

Test of median = 0.000000 versus median not = 0.000000

	N	N for Test	Wilcoxon Statistic	P	Estimated Median
C4	16	14	84.5	0.048	0.1000

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Eks 3. Samanlikning av nikotininnhald i to sigarett-typar. Tala er gitt i milligram. Eks 16.5.

Data Display

Row	A	B
1	2.1	4.1
2	4.0	0.6
3	6.3	3.1
4	5.4	2.5
5	4.8	4.0
6	3.7	6.2
7	6.1	1.6
8	3.3	2.2
9		1.9
10		5.4

Mann-Whitney Confidence Interval and Test

A N = 8 Median = 4.400
 B N = 10 Median = 2.800
 Point estimate for ETA1-ETA2 is 1.450
 95.4 Percent CI for ETA1-ETA2 is (-0.399,3.199)
 W = 93.0
 Test of ETA1 = ETA2 vs ETA1 not = ETA2 is significant at 0.1426
 The test is significant at 0.1422 (adjusted for ties)
 Cannot reject at alpha = 0.05

Wilcoxon's ett-utvalgstest

$$P(W_- \leq x)$$

3	4	5	6	7	8	9	10	11	12	13	14	15	n/x
.125	.062	.031	.016	.008	.004	.002	.001	.000	.000	.000	.000	.000	0
.250	.125	.062	.031	.016	.008	.004	.002	.001	.000	.000	.000	.000	1
.375	.188	.094	.047	.023	.012	.006	.003	.001	.001	.000	.000	.000	2
.625	.312	.156	.078	.039	.020	.010	.005	.002	.001	.001	.000	.000	3
.750	.438	.219	.109	.055	.027	.014	.007	.003	.002	.001	.000	.000	4
.875	.562	.312	.156	.078	.039	.020	.010	.005	.002	.001	.001	.000	5
1.000	.688	.406	.219	.109	.055	.027	.014	.007	.003	.002	.001	.000	6
	.812	.500	.281	.148	.074	.037	.019	.009	.005	.002	.001	.001	7
	.875	.594	.344	.188	.098	.049	.024	.012	.006	.003	.002	.001	8
	.938	.688	.422	.234	.125	.064	.032	.016	.008	.004	.002	.001	9
	1.000	.781	.500	.289	.156	.082	.042	.021	.010	.005	.003	.001	10
		.844	.578	.344	.191	.102	.053	.027	.013	.007	.003	.002	11
		.906	.656	.406	.230	.125	.065	.034	.017	.009	.004	.002	12
		.938	.719	.469	.273	.150	.080	.042	.021	.011	.005	.003	13
		.969	.781	.531	.320	.180	.097	.051	.026	.013	.007	.003	14
		1.000	.844	.594	.371	.213	.116	.062	.032	.016	.008	.004	15
			.891	.656	.422	.248	.138	.074	.039	.020	.010	.005	16
			.922	.711	.473	.285	.161	.087	.046	.024	.012	.006	17
			.953	.766	.527	.326	.188	.103	.055	.029	.015	.008	18
			.969	.812	.578	.367	.216	.120	.065	.034	.018	.009	19
			.984	.852	.629	.410	.246	.139	.076	.040	.021	.011	20
			1.000	.891	.680	.455	.278	.160	.088	.047	.025	.013	21
				.922	.727	.500	.312	.183	.102	.055	.029	.015	22
				.945	.770	.545	.348	.207	.117	.064	.034	.018	23
				.961	.809	.590	.385	.232	.133	.073	.039	.021	24
				.977	.844	.633	.423	.260	.151	.084	.045	.024	25
				.984	.875	.674	.461	.289	.170	.095	.052	.028	26
				.992	.902	.715	.500	.319	.190	.108	.059	.032	27
				1.000	.926	.752	.539	.350	.212	.122	.068	.036	28

Wilcoxon's to-utvalgstest

$$P(U_1 \leq u)$$

n_1 = antall observasjoner i det minste utvalget.

n_2 = antall observasjoner i det største utvalget.

$n_1 \backslash n_2$	3	3	4	3	4	5	3	4	5	6	3	4	5	6	7	3	4	5	6	7	8	u	
	3	4	4	5	5	5	6	6	6	6	7	7	7	7	7	8	8	8	8	8	8	8	
.050	.029	.014	.018	.008	.004	.012	.005	.002	.001	.008	.003	.001	.001	.000	.000	.006	.002	.001	.000	.000	.000	.000	0
.100	.057	.029	.036	.016	.008	.024	.010	.004	.002	.017	.006	.003	.001	.001	.012	.004	.002	.001	.000	.000	.000	.000	1
.200	.114	.057	.071	.032	.016	.048	.019	.009	.004	.033	.012	.005	.002	.001	.024	.008	.003	.001	.001	.001	.000	.000	2
.350	.200	.100	.125	.056	.028	.083	.033	.015	.008	.058	.021	.009	.004	.002	.042	.014	.005	.002	.001	.001	.001	.001	3
.500	.314	.171	.196	.095	.048	.131	.057	.026	.013	.092	.036	.015	.007	.003	.067	.024	.009	.004	.002	.001	.001	.001	4
.650	.429	.243	.286	.143	.075	.190	.086	.041	.021	.133	.055	.024	.011	.006	.097	.036	.015	.006	.003	.001	.001	.001	5
.800	.571	.343	.393	.206	.111	.274	.129	.063	.032	.192	.082	.037	.017	.009	.139	.055	.023	.010	.005	.002	.001	.001	6
.900	.686	.443	.500	.278	.155	.357	.176	.089	.047	.258	.115	.053	.026	.013	.188	.077	.033	.015	.007	.003	.001	.001	7
.950	.800	.557	.607	.365	.210	.452	.238	.123	.066	.333	.158	.074	.037	.019	.248	.107	.047	.021	.010	.005	.002	.001	8
1.000	.886	.657	.714	.452	.274	.548	.305	.165	.090	.417	.206	.101	.051	.027	.315	.141	.064	.030	.014	.007	.003	.001	9
	.943	.757	.804	.548	.345	.643	.381	.214	.120	.500	.264	.134	.069	.036	.388	.184	.085	.041	.020	.010	.005	.002	10
	.971	.829	.875	.635	.421	.726	.457	.268	.155	.583	.324	.172	.090	.049	.461	.230	.111	.054	.027	.014	.007	.003	11
	1.000	.900	.929	.722	.500	.810	.543	.331	.197	.667	.394	.216	.117	.064	.539	.285	.142	.071	.036	.019	.009	.004	12
		.943	.964	.794	.579	.869	.619	.396	.242	.742	.464	.265	.147	.082	.612	.341	.177	.091	.047	.025	.013	.007	13
		.971	.982	.857	.655	.917	.695	.465	.294	.808	.536	.319	.183	.104	.685	.404	.218	.114	.060	.032	.016	.008	14
		.986	1.000	.905	.726	.952	.762	.535	.350	.867	.606	.378	.223	.130	.752	.467	.262	.141	.076	.041	.021	.010	15
		1.000		.968	.845	.988	.871	.669	.469	.942	.736	.500	.314	.191	.861	.596	.362	.207	.116	.065	.032	.016	16
				.984	.889	1.000	.914	.732	.531	.967	.794	.562	.365	.228	.903	.659	.416	.245	.140	.080	.041	.021	17
				.992	.925		.943	.786	.591	.983	.842	.622	.418	.267	.933	.715	.472	.286	.168	.097	.051	.026	18
				1.000	.952		.967	.835	.650	.992	.885	.681	.473	.310	.958	.770	.528	.331	.198	.117	.065	.032	19
					.972		.981	.877	.706	1.000	.918	.735	.527	.355	.976	.816	.584	.377	.232	.139	.076	.041	20
					.984		.990	.911	.758		.945	.784	.582	.402	.988	.859	.638	.426	.268	.164	.097	.051	21
					.992		.995	.937	.803		.964	.828	.635	.451	.994	.893	.689	.475	.306	.191	.117	.065	22
					.996		1.000	.959	.845		.979	.866	.686	.500	1.000	.923	.738	.525	.347	.221	.139	.076	23
					1.000			.974	.880		.988	.899	.733	.549		.945	.782	.574	.389	.253	.164	.097	24
								.985	.910		.984	.926	.777	.598		.964	.823	.623	.433	.287	.191	.117	25
								.991	.934		.997	.947	.817	.645		.976	.858	.669	.478	.323	.221	.139	26
								.996	.953		1.000	.963	.853	.690		.986	.889	.714	.522	.360	.253	.164	27
								.998	.968			.976	.883	.733		.992	.915	.755	.567	.399	.287	.191	28
								1.000	.979			.985	.910	.772		.996	.936	.793	.611	.439	.323	.221	29
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