Spearman's Rank Correlation Critical Values Table

One-Tailed Tests | $\alpha = 0.05$ & $\alpha = 0.01$ | Sample Size n = 5 – 50

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WHEN TO USE ONE-TAILED Use a one-tailed test only when your hypothesis specifies the direction of the relationship *before* collecting data. H_1: $\rho > 0$ (positive association) OR H_1: $\rho < 0$ (negative association). One-tailed critical values are smaller than two-tailed values at the same α — giving more power when the direction is correct.

DECISION RULE Reject H_0 if $r_s \geq r_{critical}$ (for H_1: $\rho > 0$) | Reject H_0 if $r_s \leq -r_{critical}$ (for H_1: $\rho < 0$)

Critical Values Table — One-Tailed Tests

Find your sample size n in the left column. Select the column for your α level. Compare your calculated r_s directionally (not $|r_s|$) using the decision rule above.

Sample Size (n)	$\alpha = 0.05$ One-Tailed	$\alpha = 0.01$ One-Tailed
n = 5	0.900	1.000
n = 6	0.829	0.943
n = 7	0.714	0.893
n = 8	0.643	0.833
n = 9	0.600	0.783
n = 10	0.549	0.745
n = 11	0.518	0.709
n = 12	0.497	0.678
n = 13	0.475	0.648
n = 14	0.457	0.626
n = 15	0.441	0.604
n = 16	0.425	0.582
n = 17	0.412	0.566
n = 18	0.399	0.550
n = 19	0.388	0.535
n = 20	0.377	0.520
n = 21	0.368	0.508
n = 22	0.359	0.496
n = 23	0.351	0.486
n = 24	0.343	0.476

Sample Size (n)	$\alpha = 0.05$ One-Tailed	$\alpha = 0.01$ One-Tailed
n = 25	0.336	0.466
n = 26	0.329	0.457
n = 27	0.323	0.448
n = 28	0.317	0.440
n = 29	0.311	0.433
n = 30	0.305	0.425
n = 35	0.283	0.394
n = 40	0.264	0.368
n = 45	0.248	0.347
n = 50	0.235	0.329

■ *All values are exact permutation-based critical values for n ≤ 30. Values for n = 35–50 are t-distribution approximations (df = n–2).*

■ *A one-tailed test at $\alpha = 0.05$ is equivalent to a two-tailed test at $\alpha = 0.10$. Using a one-tailed test when no directional hypothesis existed inflates the Type I error rate.*

■ *For n > 50, use $t = r_s \times \sqrt{[(n-2)/(1-r_s^2)]}$ with df = n–2 and the t-distribution table.*

■ *Negative correlations: for H_1: $\rho < 0$, reject H_0 if $r_s \leq -r_{critical}$ (use the same table value with a negative sign).*

One-Tailed vs Two-Tailed Critical Value Comparison

n = 10, $\alpha = 0.05$ One-tailed: **0.549** Two-tailed: **0.648**	**n = 20, $\alpha = 0.05$** One-tailed: **0.377** Two-tailed: **0.447**	**n = 30, $\alpha = 0.05$** One-tailed: **0.305** Two-tailed: **0.362**

References & Sources

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