

TABLE A-5
Critical Values of the Pearson
Correlation Coefficient r

n	$\alpha = 0.05$	$\alpha = 0.01$
4	.950	.990
5	.878	.959
6	.811	.917
7	.754	.875
8	.707	.834
9	.666	.798
10	.632	.765
11	.602	.735
12	.576	.708
13	.553	.684
14	.532	.661
15	.514	.641
16	.497	.623
17	.482	.606
18	.468	.590
19	.456	.575
20	.444	.561
25	.396	.505
30	.361	.463
35	.335	.430
40	.312	.402
45	.294	.378
50	.279	.361
60	.254	.330
70	.236	.305
80	.220	.286
90	.207	.269
100	.196	.256

NOTE: To test $H_0: \rho = 0$ against $H_1: \rho \neq 0$, reject H_0 if the absolute value of r is greater than the critical value in the table.

TABLE A-6
Critical Values of Spearman's
Rank Correlation Coefficient r_s

n	$\alpha = 0.05$	$\alpha = 0.01$
5	—	—
6	.886	—
7	.786	.929
8	.738	.881
9	.700	.833
10	.648	.794
11	.618	.755
12	.587	.727
13	.560	.703
14	.538	.679
15	.521	.654
16	.503	.635
17	.485	.615
18	.472	.600
19	.460	.584
20	.447	.570
21	.435	.556
22	.425	.544
23	.415	.532
24	.406	.521
25	.398	.511
26	.390	.501
27	.382	.491
28	.375	.483
29	.368	.475
30	.362	.467

NOTES:

1. For $n > 30$, use $r_s = \pm z / \sqrt{n - 1}$ where z corresponds to the level of significance. For example, if $\alpha = 0.05$, then $z = 1.96$.
2. If the absolute value of the test statistic r_s exceeds the positive critical value, then reject $H_0: \rho_s = 0$ and conclude that there is a correlation.

Based on data from "Biostatistical Analysis, 4th edition," © 1999, by Jerrold Zar, Prentice Hall, Inc., Upper Saddle River, New Jersey, and "Distribution of Sums of Squares of Rank Differences to Small Numbers with Individuals," *The Annals of Mathematical Statistics*, Vol. 9, No. 2, with permission of the Institute of Mathematical Statistics.