

Key

Use the Spearman Rank Correlation Test to determine whether there is a correlation between the amount of the restaurant bill and the amount of the tip.

Bill (dollars)	rank	Tips (dollars)	rank	d	d ²
33.46	1	5.50	2	-1	1
50.68	2	5.00	1	-1	1
87.92	4	8.08	3	-1	1
98.84	5	17.00	6	-1	1
63.60	3	12.00	4	-1	1
107.34	6	16.00	5	-1	1
					<u>6</u>

$$r_s = 1 - \frac{6(6)}{6(36-1)}$$

$$1 - \frac{6}{35} = .828$$

C.V. for $n=6$ is
.886 for $\alpha=.05$

- ① H_0 : There is no relationship between restaurant bill and tip.
- ② $r_s = .828 < \overset{③}{\text{C.V. of .886}}$
- ④ Fail to reject the null hypothesis
- ⑤ There is not a significant relationship between bill + tip.

$$r_s = 1 - \frac{6 \sum d^2}{n(n^2 - 1)}, \text{ where } d = \text{difference in the ranks, } n = \text{number of pairs.}$$