

Example

Calculating Spearman's Rank Correlation Coefficient for Quantitative Data

In a study of the relation between students' grades in mathematics and science, the following results were found for six students.

Mathematics	D	B	A	B	D	D
Science	C	C	B	A	C	F

Find the Spearman's correlation coefficient.

Solution

Mathematics	D	B	A	B	D	D
R_M	5	2.5	1	2.5	5	5
Science	C	C	B	A	C	F
R_S	4	4	2	1	4	6
$R_M - R_S(d_i)$	1	-1.5	-1	1.5	1	-1
d_i^2	1	2.25	1	2.25	1	1

$$\sum d_i^2 = 1 + 2.25 + 1 + 2.25 + 1 + 1 = 8.5$$

$$r_s = \frac{1 - \left[\frac{6(8.5)}{6(6^2 - 1)} \right]}{1 - \frac{51}{210}} = 0.757$$