

## Practice Problems

Use the following research scenario to answer questions 1 to 8.

Suppose a researcher expects a relationship between the IQ scores of mothers and their daughters. Use the following IQ scores to examine this supposition.

Family	Mother	Daughter
1	110	123
2	100	100
3	134	132
4	94	103
5	88	88
6	74	82
7	95	100
8	123	100
9	139	147
10	100	110

1. State the null hypothesis.
2. State the research hypothesis.
3. Prepare a scatterplot of the data.
4. Compute  $r$ .
5. Compute the degrees of freedom.
6. Determine the critical value of  $r$ .
7. Compute the coefficient of determination.
8. State the findings relative to the hypothesis.

Use the following research scenario to answer questions 9 to 16.

Suppose the researcher also expected a relationship between the IQ scores of fathers and their sons. Use the following IQ scores to examine this question.

Family	Father	Son
1	120	121
2	110	105
3	120	125
4	92	87
5	85	92

6	72	90
7	107	110
8	115	122
9	155	133
10	90	123

9. State the null hypothesis.
10. State the research hypothesis.
11. Prepare a scatterplot of the data.
12. Compute  $r$ .
13. Compute the degrees of freedom.
14. Determine the critical value of  $r$ .
15. Compute the coefficient of determination.
16. State the findings relative to the hypothesis.