Interpreting the Correlation Coefficient

Extend Your Learning
Answers and Explanations

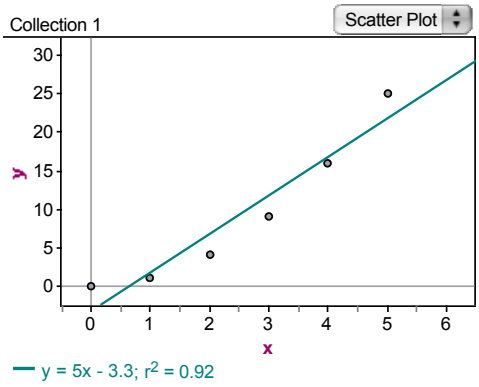
After watching the video, *Interpreting the Correlation Coefficient*, complete the following problems.

Below are four groups, each consisting of a small table of data, a graph of the data with the least-square regression line, and the correlation coefficient. For each group, decide whether it is reasonable to use the least-squares regression line for predictions.

1. Correlation Coefficient: 0.959

Collection 1

	x	y
1	0	0
2	1	1
3	2	4
4	3	9
5	4	16
6	5	25

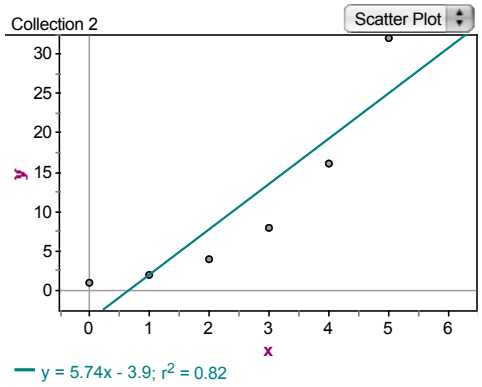


The data in the table and graph indicate that the relationship is possibly quadratic. Since the correlation coefficient only quantifies the strength of a linear relationship, it is meaningless for this graph, and the line should not be used as a predictor.

2. Correlation coefficient: 0.905

Collection 2

	x	y
1	0	1
2	1	2
3	2	4
4	3	8
5	4	16
6	5	32

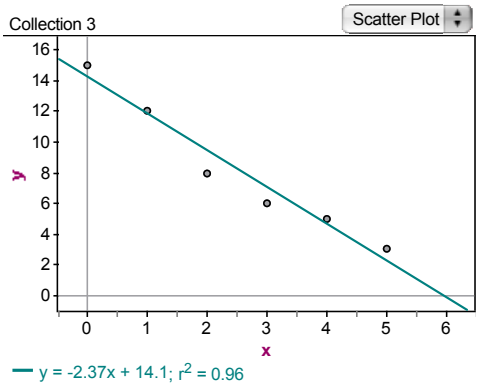


The data in the table and graph indicate that the relationship is possibly exponential. Since the correlation coefficient only quantifies the strength of a linear relationship, it is meaningless for this graph, and the line should not be used as a predictor.

3. Correlation Coefficient: -0.978

Collection 3

	x	y
1	0	13
2	1	12
3	2	8
4	3	6
5	4	5
6	5	3

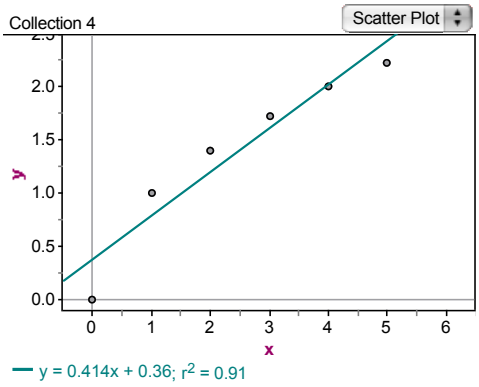


Since the data in the table and graph indicate that the relationship is possibly a linear relationship, the correlation coefficient has meaning and indicates a strong association. The line can be used as a predictor.

4. Correlation Coefficient: 0.956

Collection 4

	x	y
1	0	0.00
2	1	1.00
3	2	1.40
4	3	1.73
5	4	2.00
6	5	2.23



The data in the table and graph indicate that the relationship is a power function, specifically the square root of x. Since the correlation coefficient only quantifies the strength of a linear relationship, it is meaningless for this graph, and the line should not be used as a predictor.

5. Newspapers and online publications print headlines like the ones shown in the video all the time! Find three interesting articles that have, at their core, a study that shows a correlation, and discuss whether you think that a causal relationship is (a) plausible and (b) proven.