

TRY THIS Use the least-squares line in Example 2 to estimate the winning time in this Olympic event in the year 2000.

CRITICAL THINKING What assumption is made by using the least-squares line in the Try This exercise above?

Exercises

Communicate

For Exercises 1–3, decide whether each statement is true or false. If it is false, explain why.

1. A correlation coefficient can be equal to 3.
2. For a given data set, if the slope of the least-squares line is positive, then the correlation coefficient is positive.
3. A data set with a correlation coefficient of 0.2 has a stronger linear relationship than a data set with a correlation coefficient of -0.9 .

APPLICATIONS

4. **DEMOGRAPHICS** As a population increases, the area available per person decreases. Give another example of a situation that you would expect to have a strong negative correlation with population.
5. **TAXES** As a population increases, the government revenue from taxes tends to increase. Give another example of a situation that you would expect to have a strong positive correlation with population.

Describe the correlation among data that have the given correlation coefficient.

6. $r = 0.02$ 7. $r = -0.61$ 8. $r = 0.96$

Guided Skills Practice

Create a scatter plot of the data in each table. Describe the correlation. Then find an equation for the least-squares line. (EXAMPLE 1)

Calculator button indicates that a graphics calculator is recommended.

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x	5	0	2	6	9	4	5	3	6	4	2	6	1	7	5	2
y	6	8	7	5	2	5	7	8	3	6	8	4	9	3	5	8

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x	4	4	0	5	2	9	7	6	1	8	2	7	8	3	9	5
y	2	6	1	6	1	7	5	7	2	7	2	9	9	5	8	7

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x	1	6	9	8	2	7	4	9	1	3	6	5	0	5	8	3
y	2	5	8	2	8	1	7	9	9	1	9	4	9	5	1	2