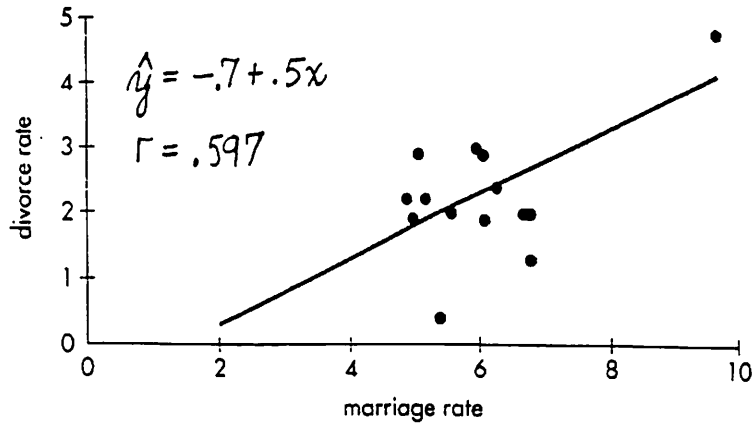


**Table 1 MARRIAGE AND DIVORCE RATES**

Marriage Rate per 1,000 People per Year	Divorce Rate per 1,000 People per Year
5.6	2
6	3
5.1	2.9
5	1.9
6.7	2
6.3	2.4
5.4	0.4
6.1	1.9
4.9	2.2
6.8	1.3
5.2	2.2
6.8	2
6.1	2.9
9.7	4.8

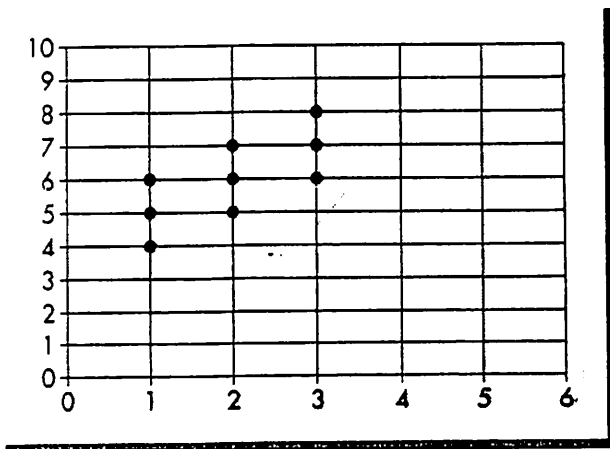


On the basis of the regression line, predict the divorce rate for a country with a marriage rate of 8 per 1,000. How much conviction do you have in this prediction?

Look again at the scatter plot in the scenario. The country at point (9.7, 4.8) is the United States. The other 13 countries are all in Europe. Compute the correlation coefficient and the regression equation when the United States is removed from the data. What is your conclusion?

Where would you place a new point on a scatter plot to make the correlation coefficient as close to 1 as possible? As close to 0 as possible?

2. For the nine points on the scatter plot below,  $r \approx 0.71$ ,  $r^2 = 0.5$ , and the equation of the least-squares regression line is  $y = 4.00 + 1.00x$ .



- a. (3, 7)
- b. (2, 6)
- c. (10, 0)
- d. (10, 6)
- e. (10, 14)
- f. (100, 0)
- g. (100, 6)

A tenth point is added to the original nine. Match each of the points <sup>above</sup>/<sub>below</sub> with the correlation coefficient that would result if that point were added. Try not to calculate the new correlation coefficient, but rather reason out which  $r$  must go with each point.

Correlation coefficients: -0.84 -0.70 0.02 0.22 0.71 0.73 0.96