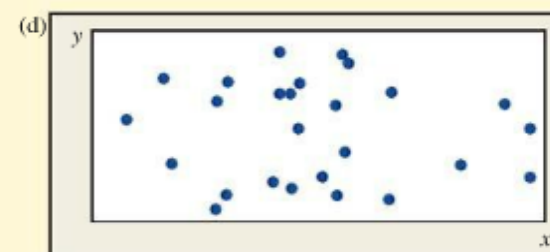
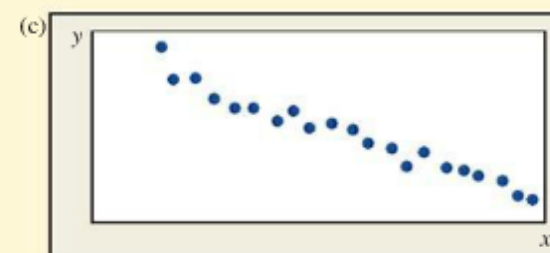
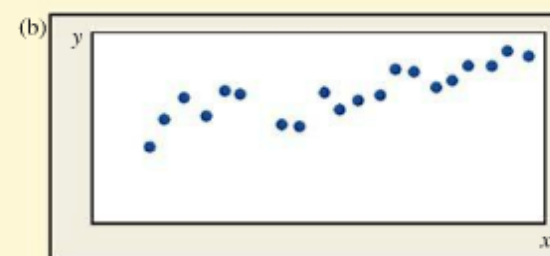
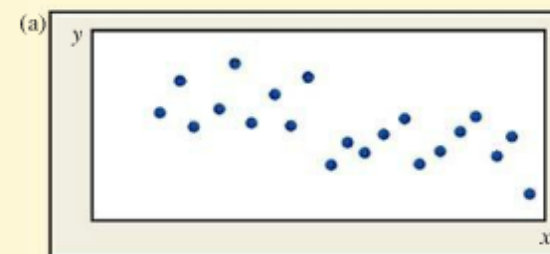


3.6 How to fight terrorism? A survey of 1000 adult Americans (*Rasmussen Reports*, April 15, 2004) asked each whether the best way to fight terrorism is to let the terrorists know we will fight back aggressively or to work with other nations to find an international solution. The first option was picked by 53% of the men but by only 36% of the women in the sample. Assume there were 600 men and 400 women in the sample.

- Identify the response variable and the explanatory variable, and their categories.
- Construct a contingency table (similar to Table 3.1) that shows the counts for the different combination of categories.
- Use a contingency table to display the percentages for the two options, separately for females and for males.
- Explain why the percentages reported here are *conditional* percentages.
- Give an example of how results would have to differ from these for you to conclude that there's *no* evidence of association between these variables.

3.16 Match the scatterplot with r Match the scatterplots below with the correlation values.

- | | |
|---------------|--------------|
| 1. $r = -0.9$ | 3. $r = 0$ |
| 2. $r = -0.5$ | 4. $r = 0.6$ |



3.26 Home selling prices The House Selling Prices FL data file on the text CD lists selling prices of homes in Gainesville, Florida, in 2003 and some predictors for the selling price. For the response variable y = selling price in thousands of dollars and the explanatory variable x = size of house in thousands of square feet, $\hat{y} = 9.2 + 77.0x$.

- How much do you predict a house would sell for if it has (i) 2000 square feet, (ii) 3000 square feet?
- Using results in part a, explain how to interpret the slope.
- Is the correlation between these variables positive or negative? Why?
- One home that is 3000 square feet sold for \$300,000. Find the residual, and interpret.

3.40 Oil and GDP An article in the September 16, 2006, issue of *The Economist* showed a scatterplot for many nations relating the response variable y = annual oil consumption per person (in barrels) and the explanatory variable x = gross domestic product (GDP, per person, in thousands of dollars). The values shown on the plot were approximately as shown in the table.

- Create a data file and use it to construct a scatterplot. Interpret.
- Find and interpret the prediction equation.
- Find and interpret the correlation.
- Find and interpret the residual for Canada.

Nation	GDP	Oil Consumption
India	3	1
China	8	2
Brazil	9	4
Mexico	10	7
Russia	11	8
S. Korea	20	18
Italy	29	12
France	30	13
Britain	31	11
Germany	31	12
Japan	31	16
Canada	34	26
U.S.	41	26

(For 3.28 parts a - c, round your answers to two decimal places.)

3.58 Death penalty and race The table shows results of whether the death penalty was imposed in murder trials in Florida between 1976 and 1987. For instance, the death penalty was given in 53 out of 467 cases in which a white defendant had a white victim.



Death Penalty, by Defendant's Race and Victim's Race

Victim's Race	Defendant's Race	Death Penalty		Total
		Yes	No	
White	White	53	414	467
	Black	11	37	48
Black	White	0	16	16
	Black	4	139	143

Source: Originally published in *Florida Law Review*. Michael Rad and Glenn L. Pierce, Choosing Those Who Will Die: Race and Death Penalty in Florida, vol. 43, *Florida Law Review* 1 (1991).

- First, consider only those cases in which the victim was white. Find the conditional proportions that got the death penalty when the defendant was white and when the defendant was black. Describe the association.
- Repeat part a for cases in which the victim was black. Interpret.
- Now add these two tables together to get a summary contingency table that describes the association between the death penalty verdict and defendant's race, ignoring the information about the victim's race.

Find the conditional proportions. Describe the association, and compare to parts a and b.

- Explain how these data satisfy Simpson's paradox. How would you explain what is responsible for this result to someone who has not taken a statistics course?
- In studying the effect of defendant's race on the death penalty verdict, would you call victim's race a confounding variable? What does this mean?

3.60 Age a confounder? A study observes that the subjects in the study who say they exercise regularly reported only half as many serious illnesses per year, on the average, as those who say they do not exercise regularly. One paragraph in the results section of an article about the study starts out, "We next analyzed whether age was a confounding variable in studying this association."

- Explain what this sentence means and how age could potentially explain the association between exercising and illnesses.
- If age was not actually measured in the study and the researchers failed to consider its effects, could it be a confounding variable or a lurking variable? Explain the difference between a lurking variable and a confounding variable.