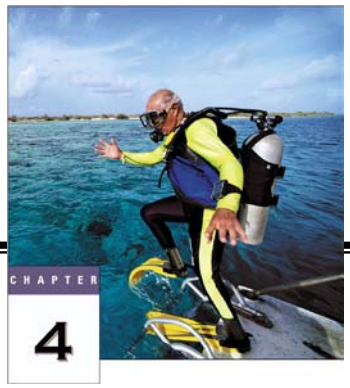

Chapter 4: More about Relationships between Two Variables

Key Vocabulary:

- exponential function
- power function
- linear growth
- exponential growth
- extrapolation
- lurking variables
- causation
- common response
- confounding
- marginal distributions
- conditional distributions

Calculator Skills:

- LOG
- LinReg(a + bx)
- LinReg(ax + b)

4.1 Transforming to Achieve Linearity (pp.259-292)

1. Explain the difference between *linear growth* and *exponential growth*.

2. State the addition rule for logarithms (p272). Give an example.

3. State the subtraction rule for logarithms (p272). Give an example.

4. State the power rule for logarithms (p272). Give an example.

5. If the graph of the ordered pairs (x, y) is exponential, what type of graph is (x, logy)?

6. If the explanatory variable is *"years"*, why is it beneficial to transform the data to *"years since.."*?

7. How does the *power model* differ to the *exponential model* ?

8. If the graph of the ordered pairs (x, y) is a *power model*, what type of graph is (logx, logy)?

4.2 Relationships between Categorical Variables (pp.292-300)

1. To analyze categorical data, we use either ……. or …… of individuals that fall into various categories.

2. What is a *two-way table*?

3. What is the *marginal distribution* of a two-way table?

4. How are *conditional distributions* calculated?

4.3 Establishing Causation (pp.305-311)

1. Define *lurking variable*.

2. If two variables have a strong positive association, then as one variable increases, the other variable also increases. Is it fair to say that an increase in one variable *causes* an increase in the other variable? Explain.

3. Define *causation*. Give an example.

4. Define *common response*. Give an example.

5. Define *confounding*. Give an example.

6. (From the bottom on p311),In the absence of experimental evidence, good evidence of causation requires:

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