

Unit 3: Homework #1

Identify the explanatory and response variables in each setting.

1. How does drinking beer affect the level of alcohol in our blood? The legal limit for drinking in all states is 0.08%. In a study, adult volunteers drank different numbers of cans of beer. Thirty minutes later, a police officer measured their blood alcohol levels.

explanatory variable

response variable

2. The National Student Loan Survey provides data on the amount of debt for recent college graduates, their current income, and how stressed they feel about college debt. A sociologist looks at the data with the goal of using amount of debt and income to explain the stress caused by college debt.

explanatory variable

response variable

3. Julie wants to know if she can predict a student's weight from his or her height because information about height is easier to obtain than information about weight!

explanatory variable

response variable

4. Multiple Choice Practice

A recent study discovered that the correlation between the age at which an infant first speaks and the child's score on an IQ test upon entering elementary school is -0.68 . A scatterplot of the data show a linear form. Which of the following statements about this finding is correct?

(a) Infants who speak at very early ages will have higher IQ scores by the beginning of elementary school than those who speak later.

(b) 68 % of the variation in IQ test scores is explained by the least squares regression of age at first word spoken and IQ score.

(c) Encouraging infants to speak before they are ready can have a detrimental effect later in life, as evidenced by their lower IQ scores.

(d) There is a moderately strong, negative linear association between age at first spoken word and later IQ test score for the individuals in this study.

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Analyzing Scatterplot

