Problem Set #11: Correlation

1. A researcher conducted a study looking at the relationship between volunteer work and two variables: empathy and anxiety. The subjects were asked to indicate how much time they spent volunteering at various community organizations (e.g., Amherst Survival Center); this was the dependent measure. The subjects were also asked to complete quick measures of empathy and anxiety (predictor variables). Statistical analyses indicated that the correlation between volunteering and anxiety was -.80; the correlation between volunteering and empathy was .40.
   1. Were people more or less likely to volunteer if there were more anxious? Explain.
   2. Was the relationship between volunteering and empathy stronger or weaker than the relationship between volunteering and anxiety? Explain.
2. Starbucks is looking for a new marketing angle and they decide to target college students. They want to show that drinking coffee makes you work harder. They decide to collect some data to support their claim. They approach students at the end of the day and ask them to report the number of cups of coffee they drank (X) and the number of hours worked in the library (Y). The data is below.
   1. Calculate a pearson correlation and interpret the association.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| X | Y | X2 | Y2 | X\*Y |
| 1 | 7 |  |  |  |
| 4 | 2 |  |  |  |
| 1 | 3 |  |  |  |
| 1 | 6 |  |  |  |
| 2 | 0 |  |  |  |
| 0 | 6 |  |  |  |
| 2 | 3 |  |  |  |
| 1 | 5 |  |  |  |
| ∑x = | ∑y = | ∑x2 = | ∑y2 = | ∑xy = |

* 1. Should Starbucks worry that caffeine consumption has detrimental effects on work ethic? Why or why not?