1. After conducting a survey at a pet store to see what impact having a pet had on the condition of the yard, a news reporter stated “There appears to be a strong correlation between the owning a pet and the condition of the yard.” Comment on this observation.

2. On the axes below, sketch a scatterplot described:
   a. a strong positive association
   b. a weak negative association

3. A study by a prominent psychologist found a moderately strong positive association between the number of hours of sleep a person gets and the person’s ability to memorize information.
   a. Explain in the context of this problem what “positive association” means.

   b. Hoping to improve academic performance, the psychologist recommended the school board allow students to take a nap prior to any assessment. Discuss the psychologist’s recommendations.
4. A common objective for many school administrators is to increase the number of students taking SAT and ACT tests from their school. The data from each state from 2003 are reflected in the scatterplot at the right.

a. Write a few sentences describing the association.

b. Estimate the correlation. \( r = \) ________

c. If the point in the top left corner (4, 1215) were removed, would the correlation become stronger, weaker, or remain about the same? Explain briefly.

d. If the point in the very middle (38, 1049) were removed, would the correlation become stronger, weaker, or remain about the same? Explain briefly.
1. After conducting a survey at a pet store to see what impact having a pet had on the condition of the yard, a news reporter stated “There appears to be a strong correlation between the owning a pet and the condition of the yard.” Comment on this observation.

The variables – owning a pet and condition of the yard – are both categorical variables. Correlation cannot be calculated with categorical variables.

2. On the axes below, sketch a scatterplot described:
   a. a strong positive association
   b. a weak negative association

3. A study by a prominent psychologist found a moderately strong positive association between the number of hours of sleep a person gets and the person’s ability to memorize information.
   a. Explain in the context of this problem what “positive association” means.

   A positive association means in general people who had more sleep were able to memorize more information.

   b. Hoping to improve academic performance, the psychologist recommended the school board allow students to take a nap prior to any assessment. Discuss this reasoning.

   The child psychologist is attributing association to cause and effect. There is an implication that more sleep will cause better memorization, therefore causing an increase in assessments scores. Perhaps people who had memorized more were able to sleep more restfully, or perhaps differences in brain chemistry allowed some people to memorize more and to sleep more easily.