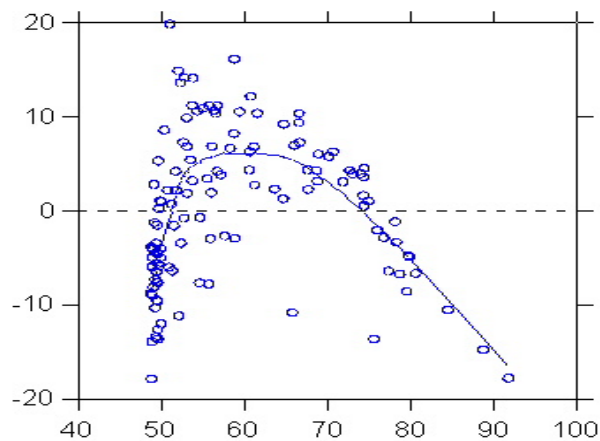# STA 207 HW-1
Due Date: 9/3/2023 by 10:20AM (Submit in Moodle)

Problem-1 [38 points]

For each of the sets of variables, identify the response variable (Y) and independent variables (X) in the study. Then, identify if the variables are quantitative (numerical: continuous or discrete) or qualitative (categorical: ordinal or nominal).

a.) [12 points] A study is conducted to understand how the state average SAT Math scores vary based on the average SAT Verbal scores. The variables are SAT Math scores, SAT verbal scores, percentage of eligible students taking the SAT, percentage of adult population without a high school education, average annual teacher salary, and state population.

b.) [12 points] To see how shooting percentage, average total points, rebounds, assists, and turnover percentage affect a team's winning percentage.

c.) [14 points] To evaluate the effect of lifestyle factors on sleep efficiency, an experiment is conducted and variables including caffeine consumption, alcohol consumption, smoking status, exercise frequency is the # of times exercise in a week, age, gender, and duration of sleep are recorded.

Problem-2 [5 points] Discuss what might be the value of the correlation between the X and Y variable using this graph. Explain why.

Problem-3 [7 points]

Share an interesting study (with reference to the article/blog) where correlation is used inaccurately to imply causation and write a summary.