Worksheet – Correlation

1. If women always married men who were two years older than themselves, what would be the correlation between the ages of husband and wife? (Hint: Draw a scatterplot for the ages of husbands and wives when the wife is 20, 30, 40, and 50 years old.)
   Also, give the prediction line.

2. For each of the following pairs of variables, would you expect a substantial negative/positve correlation, a moderate negtive/positive correlation, or a small negative/positive correlation?
   (a) The age of a secondhand car and its price.
   (b) The weight of a new car and its overall miles-per-gallon rating.
   (c) The height and the weight of a person.
   (d) The height of a person and the height of the person's father.
   (e) The height and the IQ of a person.

3. Each of the following statements contains a blunder. Explain in each case what is wrong.
   (a) There is a high correlation between the sex and income of American workers.
   (b) Since student ratings of professors' teaching and colleagues' ratings of their research have a correlation of $r = 1.21$, the better teachers also tend to be better researchers.
   (c) The correlation between pounds of nitrogen fertilizer applied to the field and the bushels per acre of corn harvested was $r = 0.63$ bushels. So applying more fertilizer increases yields.