1. Question 5.8, page 195.
   a. The correlation is 0.117.
   b. Here is a scatterplot:

   ![Scatterplot of Per Cent of Disposable Personal Income vs Household Debt](scatterplot.png)

   There is no apparent relationship.

2. Question 5.26, page 207.
   a. The slope is 244.9 and the intercept is -275.1
   b. It increases by 244.9 newtons.
   c. The predicted value is $\hat{y} = -275.1 + 244.9 \times 2 = 214.7$ newtons.
   d. No, the approximate linear relationship can’t hold for shells as short as 1 cm, since the predicted value is $\hat{y} = -275.1 + 244.9 \times 1 = -30.2$ newtons, but strength can not be negative.

The formula for the regression line is \( \text{Number of transplants in thousands} = 14.2133 + 0.7903 \times \text{Number of years since 1989} \). The picture shows a strong increasing relationship between year and number of transplants. The number of transplants increases by approximately 790 each year. There don’t appear to be outliers either for the years or for numbers of transplants.

b. Residuals for Transplant Example
Nothing in this residual plot makes it look like a curve would fit better. Any residual plot indicating such information would have a pattern in the residuals; this plot has no such pattern.

   a. This relationship is clearly curved.
   b. We need to bend both \( x \) and \( y \) down near their axes, and so moving down the power family makes sense.
   c. This relationship is now much straighter.
   d. You might try a logarithm.

5. Question 6.8, page 259.
The wording "selected for jury duty at random from those eligible" leads me to assume that serving on a jury in 2006 and 2007 are independent events. Hence the probability of serving both years is \( .15 \times .15 = .0225 \), and the probability of serving three years in a row is \( .15 \times .15 \times .15 = .003375 \).

   a. The probability that all of the 10 calls are non-reservations is \( .7^{10} = 0.028 \).
   b. I assumed that the events of a given call yielding a reservation are independent.
   c. The probability that not all of the 10 calls are non-reservations is \( 1 - 0.028 = .972 \).
Salmon Availability

Percentage of Eagles in Air

Salmon Availability
Square Root of Salmon Availability

Square Root of Percentage of Eagles in Air