**Linear Modeling**

1) The **R** data frame **cars** contains data about the stopping distance and speed of cars when the driver was signalled to stop. It takes a fixed reaction time for drivers to apply their brakes, so the car will travel a distance directly proportional to its speed before beginning to slow. However, an automobile’s kinetic energy is proportional to the square of its speed, but the brakes can only dissipate that energy, and slow the car, at a constant rate per unit distance travelled.

Fit three different linear models to this data. Report the results.

a) dist ~ β0 + β1(speed) + β2(speed2) + e

b) dist ~ β1(speed) + β2(speed2) + e

c) dist ~ β1(speed) + e

Which model seems to fit better? Why?

Note: Comparisons can be done using Residuals Vs Fitted plots (flatter lines indicate better model.