1. Plot Wage against Age and evaluate whether a linear or quadratic model would better capture the relationship.

Linear would better capture the relationship between wage and age because the visual is plotted all over they place and harder to read.

2. Estimate a multiple regression model of Wage using Age and Education as independent (X) variables; assume a standard linear relationship between Wage and Age. In R

3. Estimate another multiple regression model of Wage using Age and Education as independent (X) variables; this time fit Age using a quadratic relationship. Verify your choice from part a. by comparing the distribution of residuals and the goodness of fit between the models in parts b and c.

The quadratic model explains a much larger proportion of the variance in Wage compared to the linear model. The adjusted r squared accounts for model complexity, and the quadratic model still performs significantly better. A lower RSE in the quadratic model indicates that its predictions are closer to the actual values compared to the linear model. Both models are statistically significant, but the quadratic model has a much higher F-statistic, suggesting it explains variation in *Wage* much better.

4. Use the appropriate model to predict hourly wages for someone with 16 years of education and age equal 30, 50, or 70.

30 = 25.85187, 50 = 31.53709, 70 = 26.56490

5. According to the model, at what age will someone with 16 years of education attain the highest wages?

33 years old

1. Plot Rent against each of the three predictor variables and evaluate whether the relationship is best captured by a line or a curve. Identify variables that may benefit from a log-transformation.

The relationship is better captured by a line because the data points are more stacked up on eachother making it easier to read a line than a cure,

Baths and beds would benefit from a log transformation

2. Estimate a multiple regression model (with any appropriate log-transformations) to predict rent for a 1,600-square-foot rental with 3 bedrooms and 2 bathrooms.

$1540.38