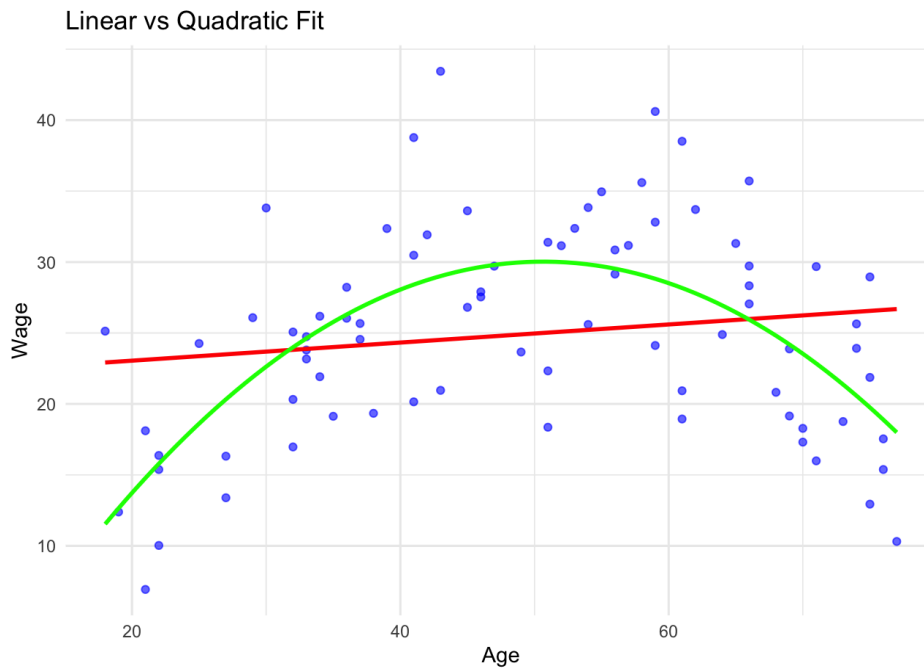


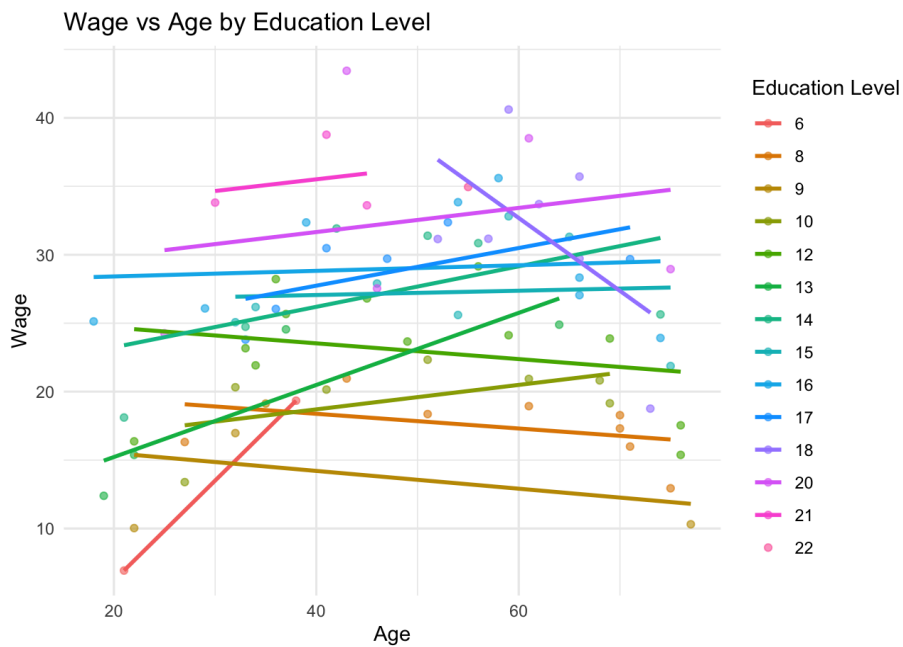
## Part 1

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

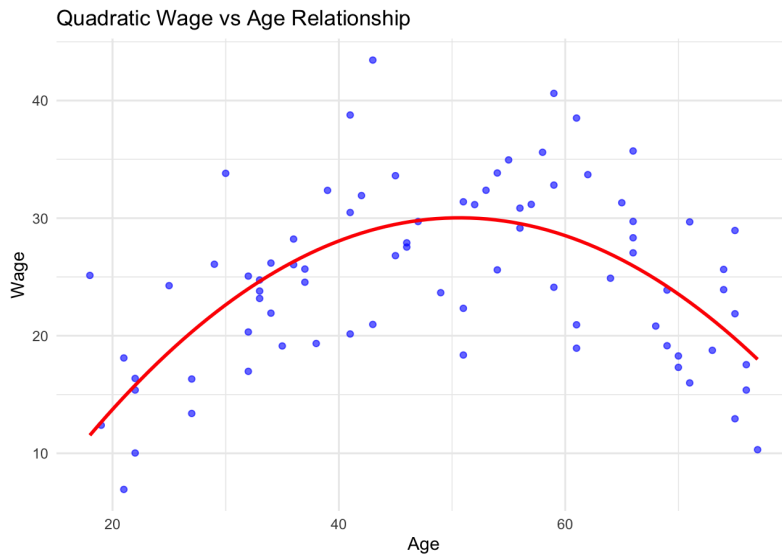


**The quadratic model would have a better relationship here.**

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.



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 second multiple regression model also fits better using a quadratic relationship.**

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**

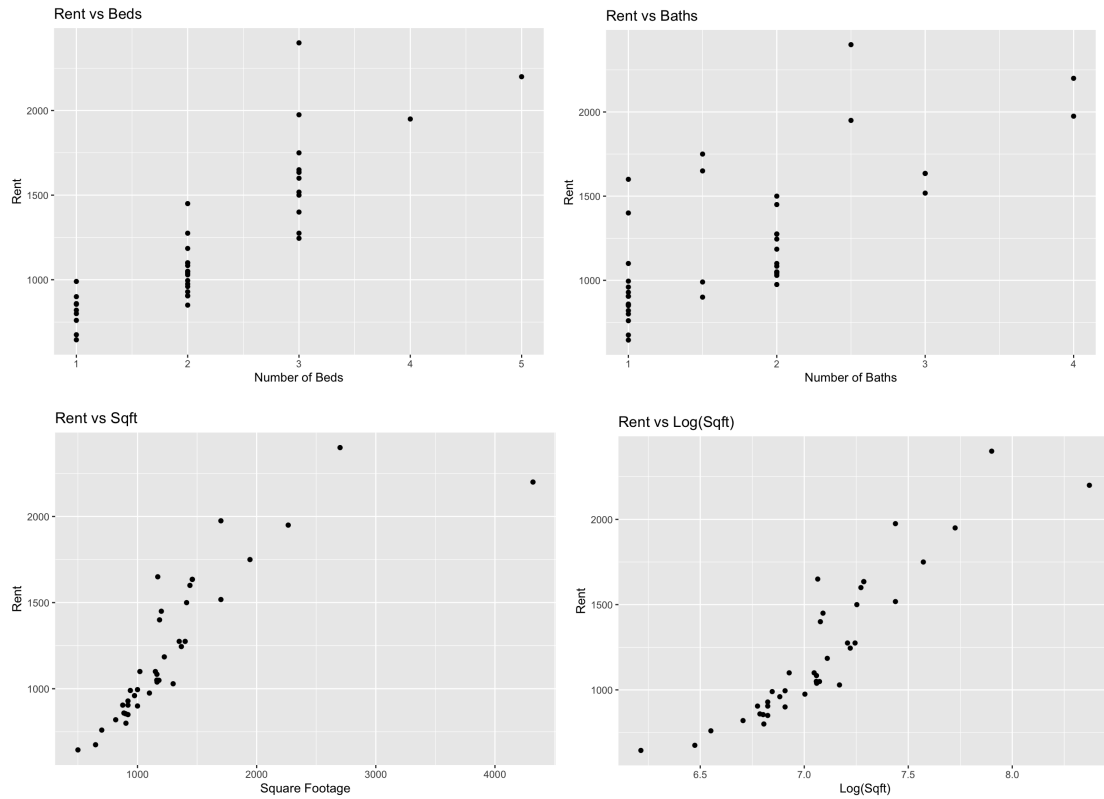
**70: 26.56490**

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

**50.66904**

## Part 2

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.



**Sqft is the best variable to perform a transformation for.**

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**