**Model #1**

**Coefficients**

* x1 has a coefficient of 0.51
  + for every one minute that travel time increases, the driver is more likely to take the freeway instead of the rural road by 0.51
* x3 has a coefficient of -0.61
  + for every one vehicle per hour increase, the driver is less likely to take the freeway to the rural road by -0.61
* x12.4 has no coefficient
  + this variable is collinear and therefore violates one of the assumptions and must be omitted for a valid model
* this model has a constant of 28.79
  + given all other factors are zero, the driver is more likely to take the freeway over the rural road by 28.79

**Odds Ratios**

* x1 has an odds ratio of 1.67
  + for every one minute that the travel time increases, the driver is 1.67 times more likely to take the freeway over the rural road
* x3 has an odds ratio of 0.94
  + for every one vehicle per hour increase, the driver is 0.94 times more likely to take the freeway over the rural road. This ratio is less than one which means the chances of the driver taking the freeway is decreasing as the rate of cars per hour increases.
* x12.4 has an odds ratio of 1.00
  + this variable is collinear and therefore, this variables is omitted from the final calculation
* this model has a constant of 3.20 \* 1012
  + If all other factors are ignored, the driver is 3.20 \* 1012 times more likely to take the freeway over the rural road
  + because this number is so high, not having any other information makes this model basically unusable

**Model #2**

**Main Difference Relative to Model #1**

This model excludes the x12 variable. By removing the x12 variable, variables x3 and x4 become more reliable to a realistic level with new P-Values under 0.05.

**Both Models**

* Neither model had more than two, if any variables under 0.05 which makes most of the data unreliable.
* If a logistic model only has x2 and one other variable, the model would work
* If all variables are included, the model breaks
* If any variable is added that isn't included in these two models, the model breaks
* by "breaks" I mean the model is too perfect and any data other than coefficients or odds ratios cannot be determined.