Test 2 Corrections

2.) a.
   d.

5.c.) The average difference in lifespan between
smokers and non-smokers is 23.4392 years

6.a) Model 3 because it has the R^2 and adj-R^2, meaning
that the predictors in this model explain the greatest
amount of the variability in mileage. All of the
coefficients are statistically significant at the 0.05
confidence level. The residual plot shows a random
distribution of points over the zero line, meaning that
there is a very small difference between the observed
and theoretical values.

7a. $H_0: \beta_2 = \beta_3 = 0$

$H_a: \beta_2 \text{ or } \beta_3 \neq 0$

b. The fitted versus studentized plot for model 3 shows
the strongest evidence for fulfilling the constant
variance assumption.

8. One would suspect multicollinearity with the weight var because
heavier vehicles would have greater displacement. To do this, we would look
at a scatterplot of weight vs. displacement to check for a linear relationship.
If there is a high correlation ($r > .27$) we may not need to include
if it makes the model more complicated. We could also combine
the new var with weight var if they have a strong positive linear
relationship. Additionally, if the new var model has a VIF > 5, we
may not need it. We should also compare R^2 values for the models
with and without the new var. I would also check the residual
plots for both models to measure for fit and determine

if the residuals were more evenly dispersed in one model over the other.