1. Formal statistical tests are more important for diagnosing linear regression assumption violation than graphical techniques. 3 / 3 points

   True

   False

2. The "concept validity" assumption can easily be assessed through formal statistical tests and/or graphical techniques. 3 / 3 points

   True

   False

3. The linearity assumption implies that: 4 / 4 points

   Increasing one predictor in the model has an impact on the slope of another predictor.

   The effects of each predictor on the mean of the response is additive.

   Multiplicative relationships, e.g., $\mathbf{x}_j\mathbf{x}_k$ are permissible.

   The slope of the line that relates the mean of the response to the j^{th} predictor does not depend on values of any other predictor.

4. If the linearity assumption is not met: 4 / 4 points

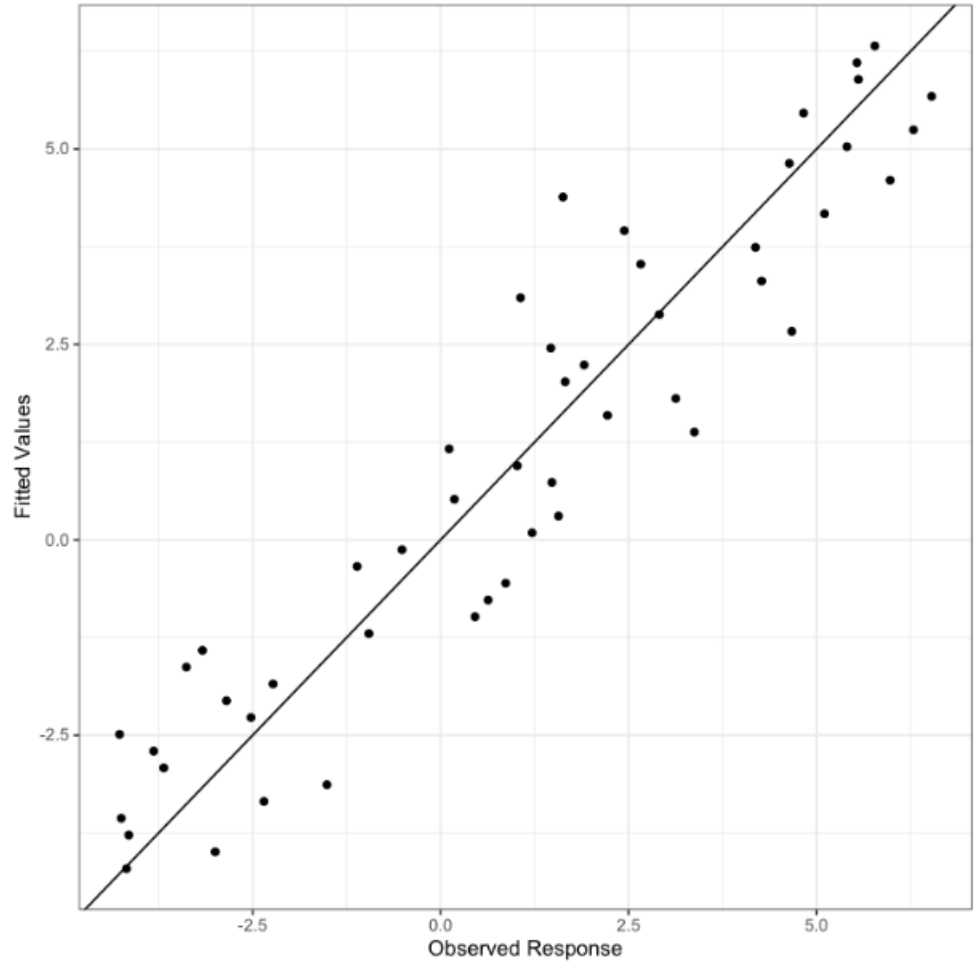
   The least squares estimator is still unbiased.

   The model will still have explanatory power.

   Predictions from the regression model will likely still be accurate.

   Inferences about the regression model (e.g., t-tests) will be biased and misleading.

5. 3 / 3 points

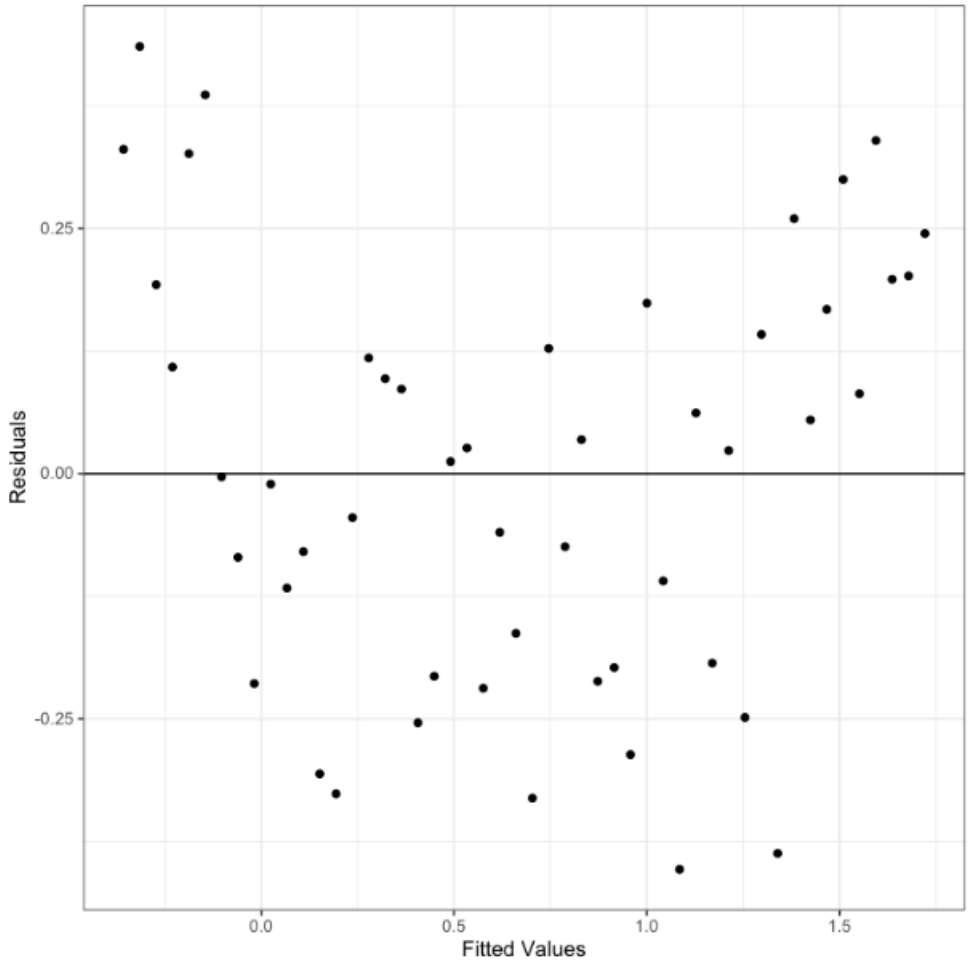


The above plot provides evidence that the linearity assumption has not been met.

True

False

6. 3 / 3 points



The above plot provides evidence that the linearity assumption has not been met.

True

False

7. If the mean of the residuals is not equal to zero, then we have some evidence that the linearity assumption has not been met. 3 / 3 points

True

False

8. Which of the following can help with independence diagnostics? 4 / 4 points

A successive residual plot

t-tests for individual regression parameters

Residuals vs. index plot

The Durbin-Watson test

A pairwise plot of all predictors

Residuals vs. time plot

9. No correlation (or a very small correlation) between successive residuals provides strong evidence that the independence/uncorrelated errors assumption has not been violated. 3 / 3 points

True

False

10. Generalized least squares is a potential solution to a violation of the uncorrelated/independent errors assumption. 3 / 3 points

True

False