- 4.5 – **[10 pts]**

  1. The cars appear to be independent as no car was used twice and they were all of different makes and models.
  2. No significant increase in variability was detected with the non-constant variance test (p=0.7686). However, the residual plot shows a fairly distinct heteroscedasticity **(Figure B.9)**.

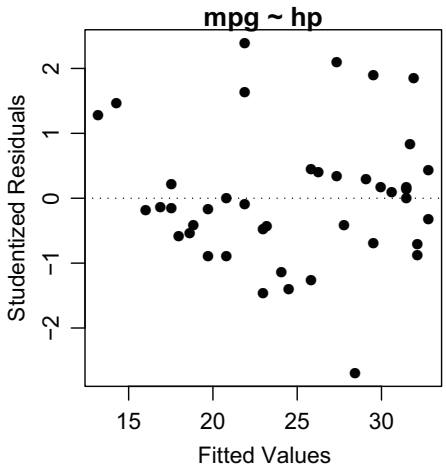

Figure B.9: Residual plot for the simple linear regression of car mpg on car horespower.

  3. The Anderson-Darling test shows weak but insignificant evidence for non-normality (p=0.0784) and the histogram of residuals is approximately symmetric **(Figure B.10)**.

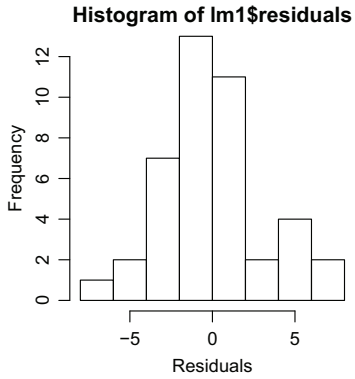

Figure B.10: Histogram of residuals from the simple linear regression of car mpg on car horespower.

  4. There are no significant outliers according to the outlier test (p=0.4334)

R Commands

```
> residual.plot(lm1)
> ncv.test(lm1)
> ad.test(lm1$residuals)
> hist(lm1$residuals, xlab = "Residuals")
> outlier.test(lm1)
```