Chapter 8 And 9

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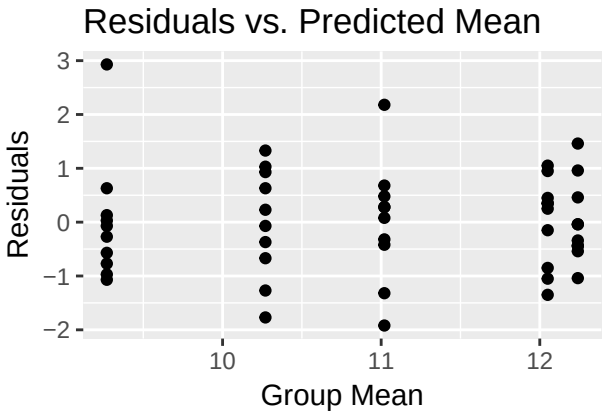
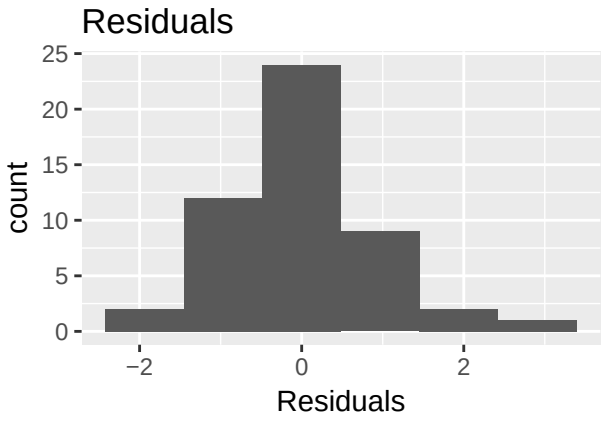
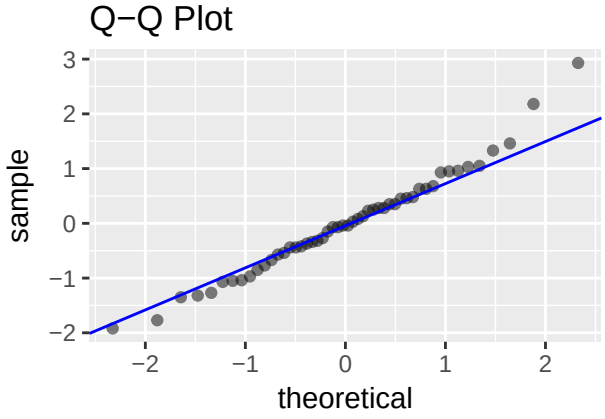
9.13 a) Checking the results from Proc Mixed in order to do ANOVA







9.13 b) Perform ANOVA test on the data: Show ANOVA Table First, then Run the Test

```
anova_mod
```

```
## Call:
##    aov(formula = wt_loss ~ treatment, data = gather_frame)
##
## Terms:
##                 treatment Residuals
## Sum of Squares     61.618    44.207
## Deg. of Freedom         4        45
##
## Residual standard error: 0.9911497
## Estimated effects may be unbalanced
```

```
summary(anova_mod)
```

```
##             Df Sum Sq Mean Sq F value   Pr(>F)
## treatment    4  61.62  15.405   15.68 4.16e-08 ***
## Residuals   45  44.21   0.982
## ---
```

```
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

9.13 c) Perform Tukey's W on the significant pairs

```
real_w <- TukeyHSD(anova_mod, ordered = TRUE)
real_w$treatment
```

```
##         diff        lwr      upr        p adj
## a_3-s   1.00 -0.2594887 2.259489 1.784060e-01
## a_2-s   1.75  0.4905113 3.009489 2.428628e-03
## a_1-s   2.78  1.5205113 4.039489 1.200843e-06
## a_4-s   2.97  1.7105113 4.229489 2.780828e-07
## a_2-a_3 0.75 -0.5094887 2.009489 4.490082e-01
## a_1-a_3 1.78  0.5205113 3.039489 1.980323e-03
## a_4-a_3 1.97  0.7105113 3.229489 5.243121e-04
## a_1-a_2 1.03 -0.2294887 2.289489 1.563263e-01
## a_4-a_2 1.22 -0.0394887 2.479489 6.176067e-02
## a_4-a_1 0.19 -1.0694887 1.449489 9.927171e-01
```