1 Residual Plot

The residual data of the simple linear regression model is the difference between the observed data of the dependent variable y and the fitted values $\hat{y}$.

Plot the residual of the simple linear regression model of the data set faithful against the independent variable waiting.

We apply the lm function to a formula that describes the variable eruptions by the variable waiting, and save the linear regression model in a new variable eruption.lm. Then we compute the residual with the `resid` function.

```
> eruption.lm = lm(eruptions ~ waiting, data=faithful)
> eruption.res = resid(eruption.lm)
```

We now plot the residual against the observed values of the variable waiting.

```
> plot(faithful$waiting, eruption.res,
+     ylab="Residuals", xlab="Waiting Time",
+     main="Old Faithful Eruptions")
> abline(0, 0)                  # the horizon
```

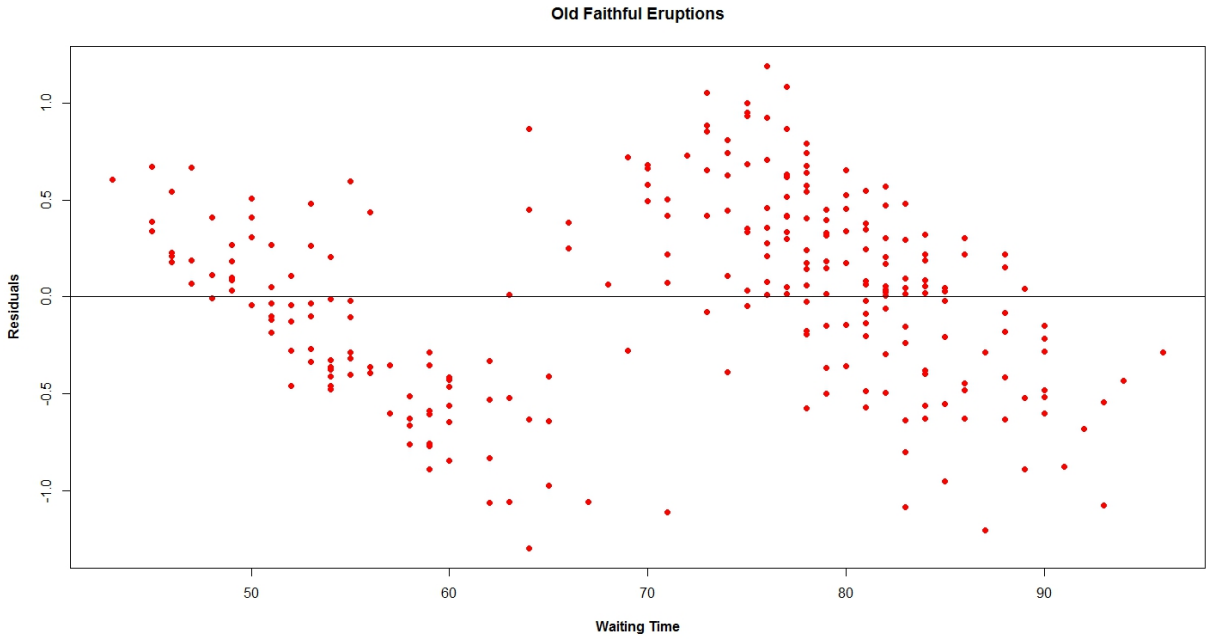
Old Faithful Eruptions
Residuals
1.0
0.5
0.0
-0.5
-1.0
50
60
70
80
90
Waiting Time

Figure 1: