Relation between Profit and Number of Defective Items

The correlation between Profit and number of defective items were found to be -0.9774. The profit and number of defective items are highly correlated to each other. The scatter plot depicts that relation is liner. The meaning of negative correlation is that if we increase the number of defective items, the profits decreases accordingly. The dataset shows that it satisfies all the assumption for the linear regression. So, we tried to analyses the linear regression between profit and number of defective items where profit was assumed to be outcome variable number of defective item was assumed to be predictor variable. The shape of the correlation shows that they are linearly dependent to each other. While analyzing the residual of the model containing profit as an outcome variable and number of defective items as a univariate predictor. We were unable to say that the residual is not normally distributed. The residuals and the fitted values were perfectly uncorrelated to each other as they should be in a homoscedastic linear model with normally distributed errors. The linear regression model was found to be significant with the p value of 0. 05. It was found that there is significant association between mean ABP and the weight. 90% variability of the mean ABP was described by the weight. The estimated value for the different parameter in the model shows that Number of Defective items is good predictor of profit. We found that adjusted r-square value in the model is 0.9543 which means 95.43% of variability of the profit is explained by the number of defective items. The final model we obtained was as follow.

$\widehat{(Profit)} = 1118.81 - 1.04 * Number\ of\ Defective\ item$

The profit is maximum when the number of defective item is zero and the profit decreases as the number of defective item increases. For each one number of increase in defective item, the profit decrease by 1.04.