VST and Kruskal-Wallace Assignment

A civil engineer is interested in determining whether four different methods of estimating flood flow frequency produce equivalent estimates of peak discharge when applied to the same watershed. Each procedure is used six times on the watershed, and the resulting discharge data (in cubic feet per second) are shown below.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Estimation  Method | Observations | | | | | |
| 1 | .34 | .12 | 1.23 | .70 | 1.75 | .12 |
| 2 | .91 | 2.94 | 2.14 | 2.36 | 2.86 | 4.55 |
| 3 | 6.31 | 8.37 | 9.75 | 6.09 | 9.82 | 7.24 |
| 4 | 17.15 | 11.82 | 10.97 | 17.20 | 14.35 | 16.82 |

1. Write the linear effects equation and the hypothesis you are testing
2. Does it appear the data is normally distributed? Does it appear that the variance is constant?
3. (nonparametric) Perform a Kruskal-Wallace test in R (α=0.05)
4. (parametric) Select an appropriate transformation using Box Cox, transform the data and test hypothesis in R (α=0.05)