Report

Confirm Normality

Graph -> Probability Plot (multiple)

Conclusion: all distributions are normal.

Probability Plot of A, B, C, D
Normal - 95% CI

Mean	StDev	N	AD	P
18.96	2.744	100	0.328	0.514
19.89	3.225	100	0.380	0.396
22.20	3.201	100	0.378	0.401
19.56	3.139	100	0.213	0.851
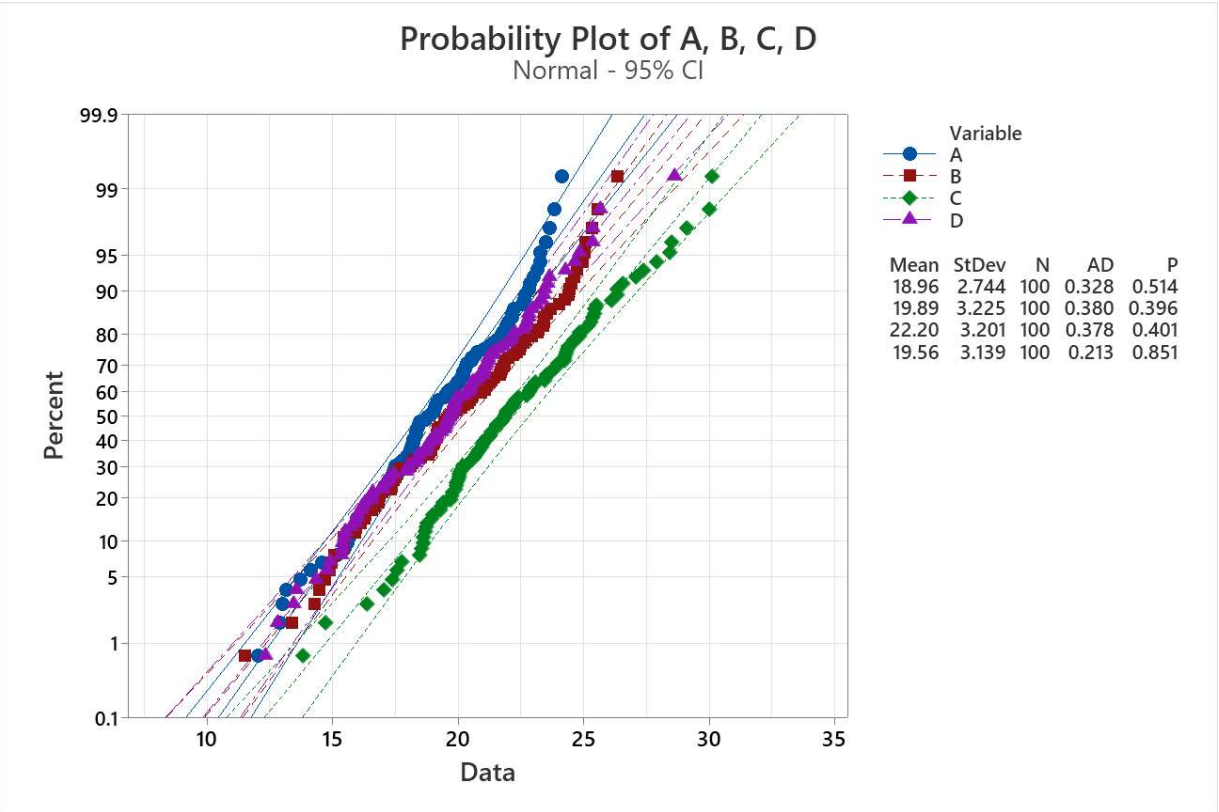
Confirm Equal Variances

Stat -> ANOVA -> Test for Eqial Variances

Conclusion: fail to reject null hypothesis. Variances are equal.

Method

Null hypothesis	All variances are equal
Alternative hypothesis	At least one variance is different
Significance level	α = 0.05

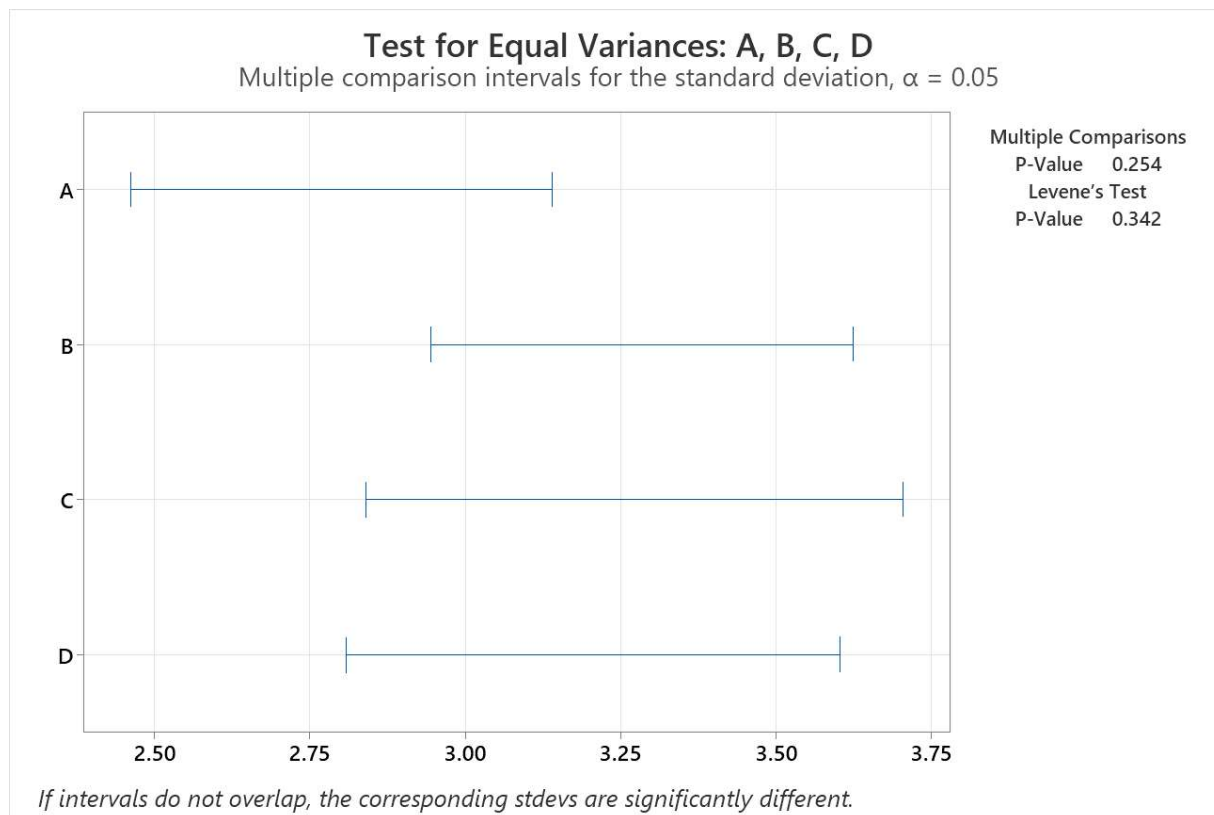## 95% Bonferroni Confidence Intervals for Standard Deviations

Sample	N	StDev	CI
A	100	2.74350	(2.35761, 3.27434)
B	100	3.22464	(2.81438, 3.78936)
C	100	3.20132	(2.69650, 3.89800)
D	100	3.13931	(2.66707, 3.78983)

Individual confidence level = 98.75%

Tests

Method	Test Statistic	P-Value
Multiple comparisons	—	0.254
Levene	1.12	0.342

Test for Equal Variances: A, B, C, D
Multiple comparison intervals for the standard deviation, α = 0.05

Multiple Comparisons
P-Value   0.254
Levene's Test
P-Value   0.342

If intervals do not overlap, the corresponding stdevs are significantly different.

One-Way ANOVA

One way ANOVA can be performed only on data that is normally distributed and variances are equal.
These tests were performed separately and criteria confirmed.

Stat -> ANOVA -> One-way
Responses in separate columns
Graph Four in One

Conclusion: Reject the null hypothesis. Not all of these data sets are equal.

Method

Null hypothesis	All means are equal
Alternative hypothesis	Not all means are equal
Significance level	$\alpha = 0.05$

Equal variances were assumed for the analysis.

Factor Information

Factor	Levels	Values
Factor	4	A, B, C, D

Analysis of Variance

Source	DF	Adj SS	Adj MS	F-Value	P-Value
Factor	3	605.2	201.729	21.22	0.000
Error	396	3764.9	9.507		
Total	399	4370.0			

Model Summary

S	R-sq	R-sq(adj)	R-sq(pred)
3.08338	13.85%	13.20%	12.10%

Means

Factor	N	Mean	StDev	95% CI
A	100	18.958	2.744	(18.352, 19.564)
B	100	19.886	3.225	(19.280, 20.492)
C	100	22.203	3.201	(21.597, 22.809)
D	100	19.561	3.139	(18.954, 20.167)

Pooled StDev = 3.08338

Interval Plot of A, B, ...
95% CI for the Mean
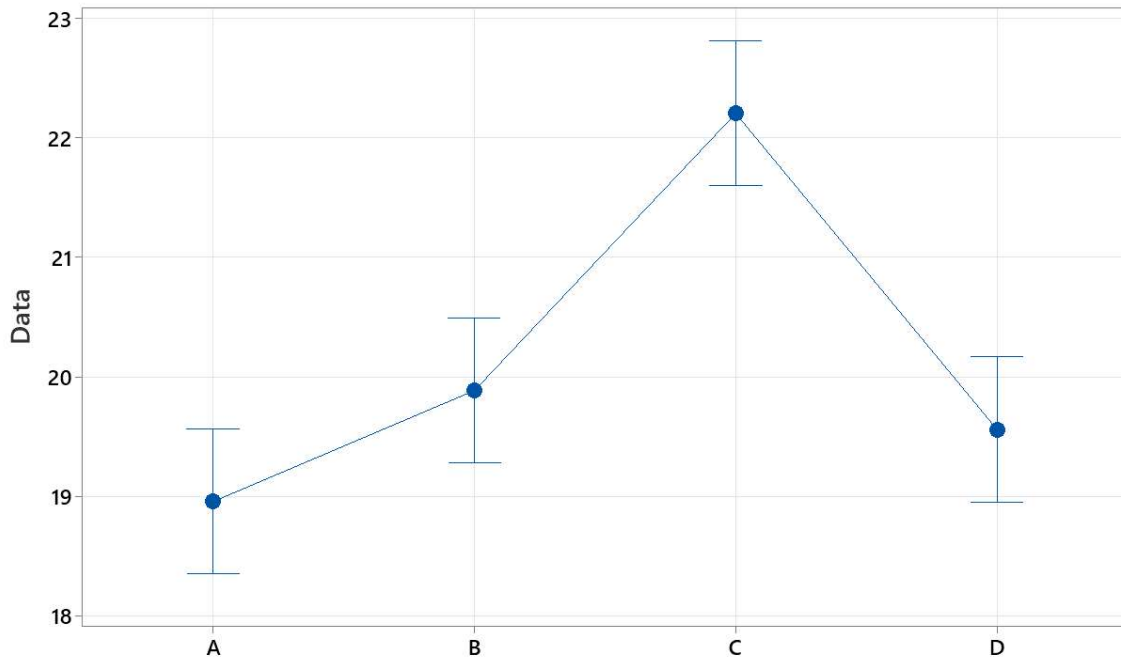
The pooled standard deviation is used to calculate the intervals.

Residual Plots for A, B, ...

Normal Probability Plot

Versus Fits

Histogram