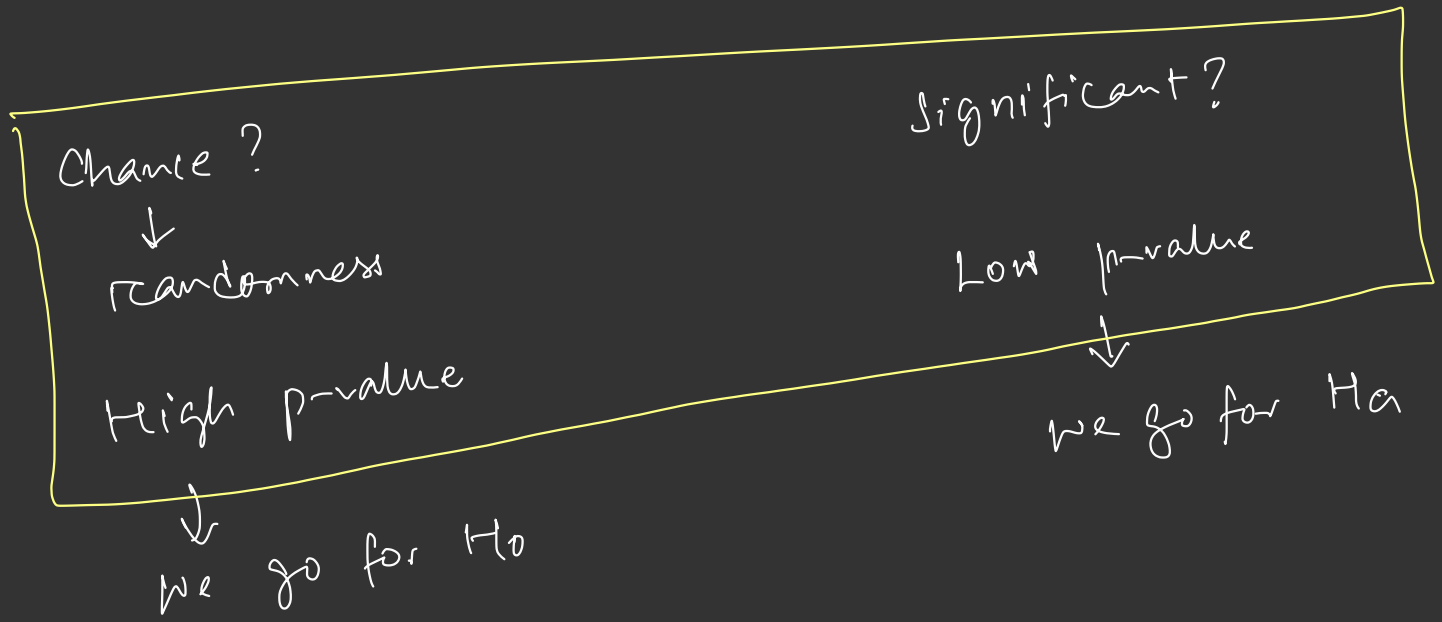
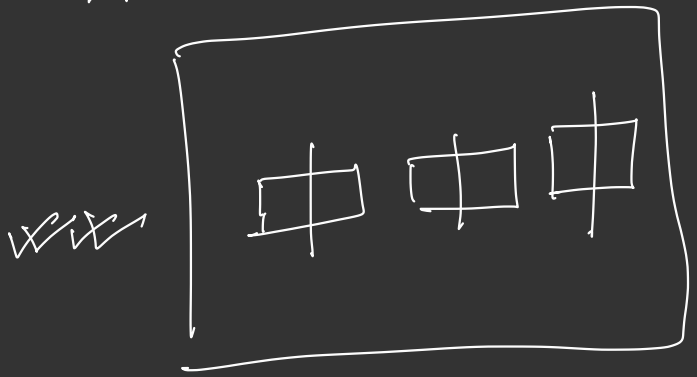
ANOVA: Analysis of Variance



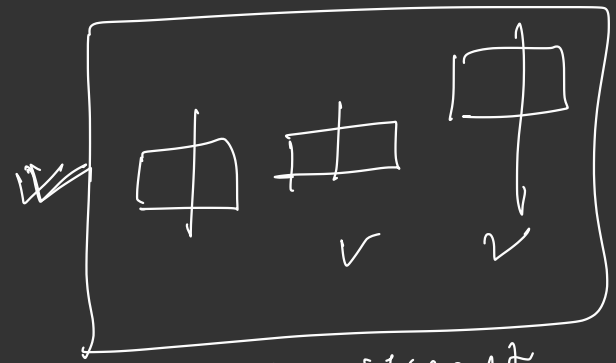
Random groups → g_1, g_2, g_3

setup 1



chance

setup 2



significant

H_0: All means are equal

H_a: Some means are different

① Within each group — is there lots of variance?

② Across each group : " " " " : ?

setup1 : g_1 , g_2 , g_3

setup2 : products KP281, KP481, KP781

$$\text{F-Ratio} = \frac{\text{variance between group}}{\text{variance within group}}$$

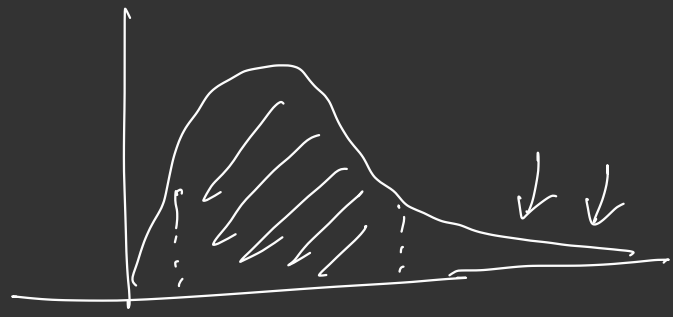
F-ratio $\uparrow \Rightarrow$ p-value $\downarrow \Rightarrow H_a$

setup 1 : Higher value

setup 2 : Lower p-value

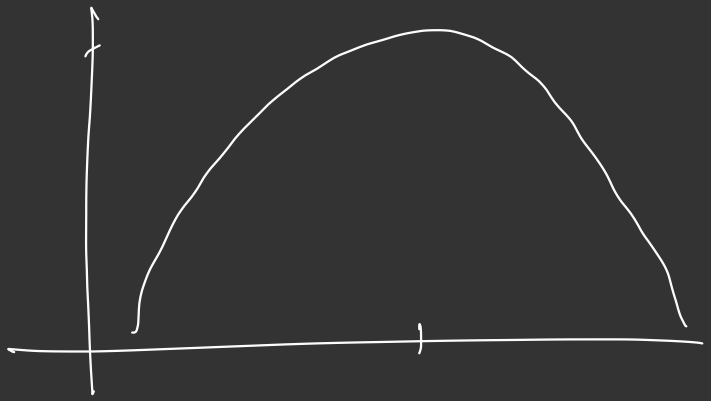
Assumptions of ANOVA :

1. Data should be Gaussian
2. Data is independent of each other. (interms of rows)
3. Equal variances in different groups



Kruskal Wallis Test

Gaussian Test



QQ plot

↑
quantile

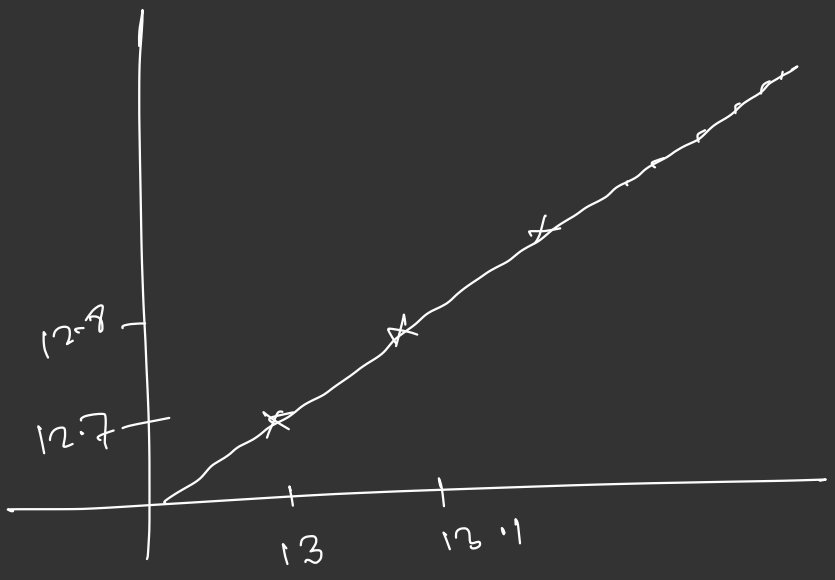
Bunch of numbers

13 — 1st percentile vs 1st percentile — 12.7

13.1 — 2nd " 2nd " — 12.8

⋮ — ⋮

100th 100th


12.9
12.7
13
13.11