Scenerio

A school implements a new teaching method in one of its mathematics classes, aiming to improve students' performance. The school administration is interested in knowing whether the new teaching method has a significant impact on the average exam scores compared to the traditional method.
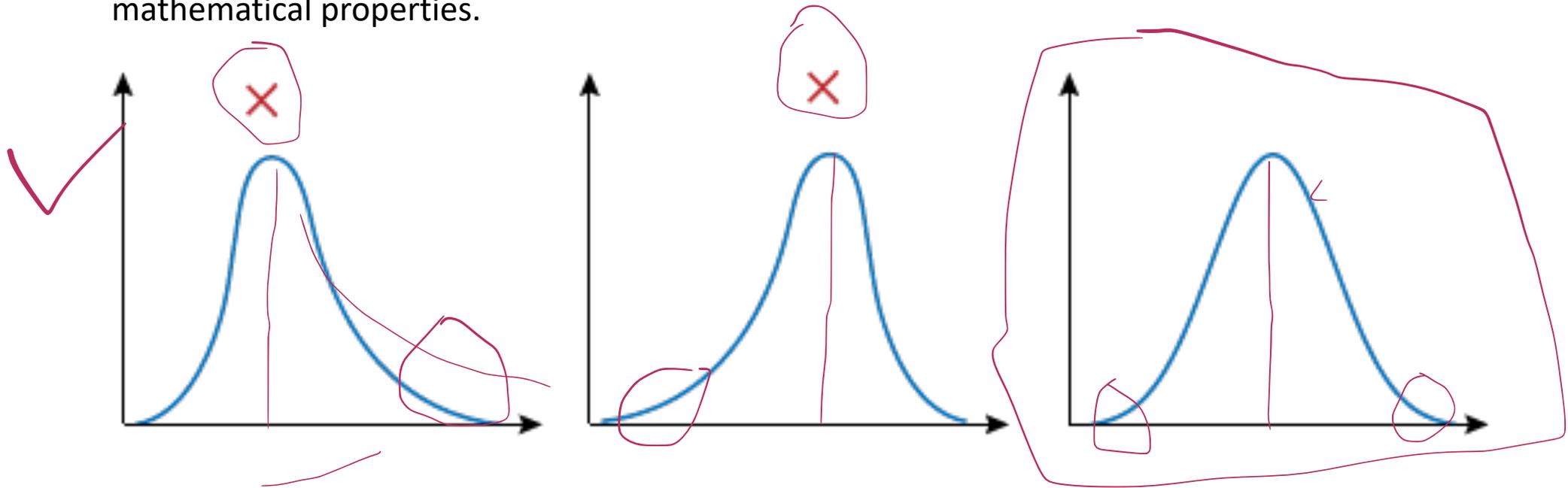
Hypothesis

- **Null:** The average exam scores of students using the new teaching method are the same as those using the traditional method.

- **Alternative:** The average exam scores of students using the new teaching method are different from those using the traditional method.

Significance level

5% or 0.05

Normal Distribution

- Normal distribution or bell curve, is a fundamental concept in statistics and probability theory. It describes a symmetric, bell-shaped probability distribution characterized by certain mathematical properties.

Normal Distribution

- Before testing any hypothesis the numeric variable must follow the normal distribution. So the distribution must be checked, if it does not follow the distribution, several techniques will be applied to transform the distribution near normal.

Statistical Test

Hypothesis	Analysis
There is a significant difference in **SOMETHING** among **TWO** or **MORE** groups.	One – way ANOVA
There is a significant **RELATIONSHIP** between/among **NUMERIC** variables.	Correlation Test
There is a significant **IMPACT/INFLUENCE/AFFECT** of one or more variables to another variable.	Regression analysis

Decision

- Examine the p-value obtained from the statistical test. If the p-value is less than a chosen significance level (e.g., 0.05), the null hypothesis is rejected.

Conclusion

- If the null hypothesis is rejected, it suggests that there is evidence to support the claim that the new teaching method has a significant impact on average exam scores.

- If the null hypothesis is not rejected, it indicates that there is insufficient evidence to conclude that the new method is different from the traditional method in terms of average exam scores.