Statistics Worksheet 3

1. b) Total Variation = Residual Variation + Regression Variation

2. c) binomial

3. a) 2

4. a) Type-I error

5. c) Level of confidence

6. b) Increase

7. b) Hypothesis

8. d) All of the mentioned

9. a) 0

10. Bayes' theorem is a method of applying probability to statistics. The conditional probability of an event, based on the occurrence of another event, is equal to the likelihood of the second event given the first event multiplied by the probability of the first event. Formula for Bayes' Theorem is **P(A|B) =(P(B/A)P(A)) / P(B)**

11. Z Score is measured as standard deviations from mean. Z-score indicates how much a given value differs from the standard deviation. Z score basically shows the amount of variance in the data set. Its s hypothesis within which Z Statistic is distributed normally. It is most suitable for testing when sample size is over 30 as CLT suggests when sample size is above 30 it become regular distribution.

12. T-test is a statistics test that is used to compare means of two groups. It is used in hypothesis testing to check the effect of a process.

13. Percentile is used to compare different scores of same sets. It is the percentage of scores that fall below a certain value. E.g. "He's in the 10^{th} percentile in wealth" means in total world population's wealth per individual as a data set, he falls in the top 10% of the data set, as in he's among the top 10% richest individuals in the total population.

14. ANOVA stands for ANALYSIS OF VARIANCE. Its is a statistical method used to study variance between two or more means. The inferences made on means is by analyzing the variance, hence the name. It is used to test general differences in the means.

15. ANOVA is helpful for testing multiple variables. It can tell you if there's significant difference in the variable means. It can be used in various ways, one of which is that it can be used to monitor your body stats like blood pressure, sugar, HB, BMI index before and after a meal, which can be used to prepare a diet plan by figuring out your metabolism rate.