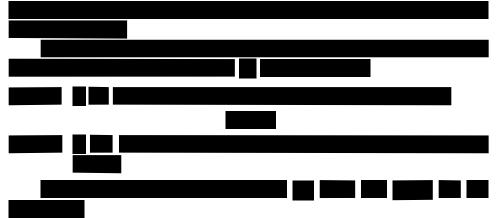
The slope and *y*-intercept of the best fit line is interpreted in a manner similar to the interpretation of such in a linear equation. That is, the slope represents the expected amount of change in Y for every one unit change in X. On the other hand, the *y*-intercept is the expected value of Y when the value of X = 0 provided the data includes X = 0.



## Testing the Significance of $\beta_1$

In addition to the best fit line that describes the linear relationship between X and Y, you can also make inferences regarding the regression parameters. However, inferences concerning b<sub>1</sub> is particularly important



## **Diagnostic Checking**

An inference regarding regression parameters is valid provided that assumptions underlying the simple linear regression model are satisfied. These assumptions include the following:



## **Measure of Model Adequacy**

The coefficient of determination  $r^2$  (or  $R^2$ ), also known as the measure of goodness-of-fit, discussed previously in correlation analysis is likewise computed to assess further the usefulness of the simple linear regression model for prediction purposes.

In simple linear regression analysis,  $r^2$  measures the total variation in the Y values that is explained by the simple linear regression model

