Answer on Question #55198 – Math – Statistics and Probability

Exercise 30 examined the association between the duration of a roller coaster ride and the height of its initial drop, reporting that $R^2 = 15.2\%$. Write a sentence summarizing what the R^2 says about this regression.

Solution

The coefficient of determination, R^2, is useful because it gives the proportion of the variance (fluctuation) of one variable that is predictable from the other variable. It is a measure that allows us to determine how certain one can be in making predictions from a certain model/graph. The coefficient of determination is the ratio of the explained variation to the total variation. The coefficient of determination represents the percent of the data that is the closest to the line of best fit

In regard to the problem, the following can be noted: if $r = 0.3899$ and $R^2 = 0.152$, which means that 15.2% of the total variation in y (the duration of a roller coaster ride) can be explained by the linear relationship between x (the height of its initial drop) and y (as described by the regression equation). The other 84.8% of the total variation in y (the duration of the ride) remains unexplained.

In a more concise formulation, it can be expressed as: 15.2% of the variation in duration can be explained by the model.