

Calculating The Correlation Coefficient (r).

Handout: Scatterplot and Regression.

To calculate r we use our calculator.

Remember to put the EV in list 1 and the RV in list 2. This will make the analysis less complicated.

- Show using Calc.

The Coefficient of Determination

The coefficient of determination is closely related to r .

It is r^2 .

When we look at a Scatter plot and the r -value we can comment on the 'association' and 'correlation' between the two variables

BUT we cannot say one causes the other, as other factors may impact.

This is where the coefficient of determination comes in.

It indicates the proportion (%) that the variation in one variable is explained by the variation in the other.

This example illustrates how to use the coefficient of determination.

A set of data giving the number of Police Traffic Patrols and the number of Fatalities in an area was recorded.

The correlation coefficient was found to be -0.8 .

Calculate the coefficient of determination and interpret its value.

$$r = -0.8 \rightarrow r^2 = (-0.8)^2 \\ = 0.64 \rightarrow 64\%$$

Interpretation

We can conclude that 64% of the variation in Fatalities can be explained by the variation in number of Police Patrols and the remaining 36% can be explained by other factors.

The wording is VERY IMPORTANT.

Use the following template.

In general we can conclude that _____ % of the variation in the (RV) can be explained by the variation in the (EV) and the remaining _____ % can be explained by other factors (such as _____).

Questions: Ex 3F & 3G^{43H} Questions on workplan