

INTERPRETING STATISTICS

FILL IN THE BLANK WITH THE WORDS AND NUMBERS IN CONTEXT

SIGNIFICANCE TEST RESULT (REJECT)

Since the p-value is less than **significance level**, we reject the null hypothesis. So there is evidence to suggest that **meaning of alternative hypothesis in context**.

eg: Since the p-value is less than **0.05**, we reject the null hypothesis. So there is evidence to suggest that **the mean temperature is different after meals with chilli and without**.

SIGNIFICANCE TEST RESULT (DO NOT REJECT)

Since the p-value is greater than **significance level**, we do not reject the null hypothesis. So there is not enough evidence to suggest that **meaning of alternative hypothesis in context**.

eg: Since the p-value is greater than **0.05**, we do not reject the null hypothesis. So there is not enough evidence to suggest that **there is an association between gender of author and genre of a novel**.

CONFIDENCE INTERVAL

We are **confidence level** % confident that the **parameter** for **population** is between **lower # units** and **upper # units**.

eg: We are **95%** confident that the **true mean salt content for all chiko rolls** is between **20.1 grams** and **30.5 grams**.

eg: We are **90 %** confident that the **true proportion of left-handed people for students studying creative arts** is between **0.15** and **0.37**.

SLOPE IN REGRESSION

An increase of one **unit** in **x variable** corresponds to an **increase/decrease** of **slope units** in **y variable** on average.

eg: An increase of one degree Celsius in the internal temperature corresponds to an increase of **1023 mites per square metre** in **carpet dust-mite concentration** on average.

CONFIDENCE INTERVAL FOR SLOPE IN REGRESSION

We are **confidence level** % confident that an increase of one **unit** in **x variable** corresponds to an **increase/decrease** of between **lower # units** and **upper # units** in **y variable** on average.

eg: We are 95% confident that an increase of one hour of sleep per week corresponds to an increase of between 5.2 percentage points and 10.2 percentage points on the final exam on average.

PREDICTION INTERVAL IN REGRESSION

We predict that **prediction level** % of all **things** with an **x variable** of x_0 **units** will have a **y variable** between **lower # units** and **upper # units**.

eg: We predict that 90% of all adults on this diet program with a dosage of psyllium husk per day of 75 grams will have a recorded decrease in cholesterol of 3.1 % to 4.8 %.

COEFFICIENT OF DETERMINATION IN REGRESSION

Approximately R^2 % of the variation in **y variable** is explained by the linear relationship with **x variable**.

eg: Approximately 26.2% of the variation in IQ test score is explained by the linear relationship with hours of video game use per week.

USING A GRAPH TO CHECK AN ASSUMPTION

In the **name of graph**, we see that **some aspect** appears to be **some description** and so the assumption of **name of assumption** is **reasonable/not reasonable**.

eg: In the **residual plot**, we see that the **scatter about the zero line** appears to **have a strongly curved pattern** so the assumption of **linearity** is **not reasonable**.

eg: In the **residual plot**, we see that the **spread about the zero line** appears to be **roughly the same along the whole line** so the assumption of **homoscedasticity** is **reasonable**.

eg: In the **histogram**, we see that the **shape of the distribution** appears to be **roughly bell-shaped**, so the assumption of **normality** is **reasonable**.