## ঌ How to Interpret the Coefficient of Determination, $R^2$:

_____ % of the variation in **dependent variable** is accounted for by the linear relationship with **independent variable**.

## ঌ How to Interpret a *p-value* for a Test of Significance:

*(Note that the p-value is a conditional probability. A low probability indicates that the given condition ($H_0$) is not likely to be true and therefore should be rejected.)*

Assuming **null hypothesis** is true, about _____ out of every _____ samples will produce a **statistic** at least this extreme due to chance variation.

OR

Assuming **null hypothesis** is true, the probability that our sample would produce a **statistic** at least as extreme as the one we observed is about **p-value**. This is (or is not, if p-value is high) too unlikely to have occurred by chance.

## ঌ How to Write a Conclusion for a Test of Significance:

*(Note that the conclusion should always be stated in terms of the alternative hypothesis, whether the null was rejected or not. The p-value either provides enough evidence to support the alternative hypothesis, or it does not provide enough evidence to support the alternative hypothesis.)*

*For a one-sample one-sided test:*

There is (or is not, if you fail to reject $H_0$) strong enough evidence to conclude that **parameter** is significantly higher (or lower, if the alternative is "less than") than $\mathbf{p_0}$.

*For a one-sample two-sided test:*

There is (or is not, if you fail to reject $H_0$) strong enough evidence to conclude that **parameter** is significantly different than $\mathbf{p_0}$.

*For a two-sample one-sided test:*

There is (or is not, if you fail to reject $H_0$) strong enough evidence to conclude that **parameter #1** is significantly higher (or lower, if the alternative is "less than") than **parameter #2**.

*For a two-sample two-sided test:*

There is (or is not, if you fail to reject $H_0$) strong enough evidence to conclude that there is a significant difference between **parameter #1** and **parameter #2**.

## How to Interpret a Confidence Interval:

*(Note that the sample statistic is always at the center of the interval, and that the margin of error is half the width of the interval.)*

*For a one-sample interval:*

We are **C** % confident that **parameter** is between about **lowerbound** and **upperbound** **units** because **C** % of all samples of size **n** will produce a **statistic** that is within **ME** of the true **parameter**.

OR

We are **C** % confident that **parameter** is between about **lowerbound** and **upperbound** **units** because **C** % of all samples of size **n** will produce a confidence interval that captures the true **parameter**.

*For a two-sample interval:*

We are **C** % confident that **parameter #1** is between about **lowerbound** and **upperbound** **units** more than (or less than) **parameter #2** because **C** % of all samples of size **n** will produce an observed difference that is within **ME** of the true difference.

OR

We are **C** % confident that **parameter #1** is between about **lowerbound** and **upperbound** **units** more than (or less than) **parameter #2** because **C** % of all samples of size **n** will produce a confidence interval that captures the true difference.

OR

We are **C** % confident that the difference between **parameter #1** and **parameter #2** is between about **lowerbound** and **upperbound** **units** because **C** % of all samples of size **n** will produce an observed difference that is within **ME** of the true difference.
OR

We are **C** % confident that the difference between **parameter #1** and **parameter #2** is between about **lowerbound** and **upperbound** **units** because **C** % of all samples of size **n** will produce a confidence interval that captures the true difference.