

1. Consider the following ANCOVA regression model, which has a three level factor and a continuous predictor X . One can test the statistical significance of interactions with a t-test for regression coefficients.

True

False

2. Consider the following ANCOVA regression model, which has a three level factor (coded with indicator variables Z_1 and Z_2), and a continuous predictor X :

$$Y = \beta_0 + \beta_1 Z_1 + \beta_2 Z_2 + \beta_3 X + \beta_4 Z_1 X + \beta_5 Z_2 X + \varepsilon,$$

where $\varepsilon \stackrel{iid}{\sim} N(0, \sigma^2)$.

What is the average value of the response for a one unit increase in X , in the third level of the factor?

β_0

$\beta_0 + \beta_3$

$\beta_0 + \beta_3 + \beta_4 + \beta_5$