

1. The energy content (in kilocalories) of breadfruit (*Arctocarpus artilis*) was measured in a total of 48 specimens representing four varieties ($12 \times 4 = 48$). Define response and explanatory variables, with symbols.

Using your symbols, write a general linear model to analyze whether the relation of energy content to fruit size depends on variety, then use the general linear model you wrote to complete the first two columns of an ANOVA table.

glm: _____ Source df

2. For each of the following two named tests, write a general linear model, then use the model to partition the degrees of freedom and fill in the first two columns in the ANOVA table. The list of sources of variance should match the model that you write. Assume that the response variable has 32 values (samples size = 32).

Q = response variable

X1, X2 = regression (explanatory) variable or variables

F1, F2 = factor (categorical explanatory) variable or variables

Regression

_____ Source df
glm: _____

Two-way ANOVA with 3 categories (levels) in each factor

_____ Source df
glm: _____

