

For each of the following data situations (1 and 2):

- (A) Define variables in a tabular format, as follows: name symbol scale [3]/variable
scale = nominal, ordinal, or cardinal (where cardinal = interval or ratio scale)
- (B) Using your symbols, write a general linear model relating the response variable to explanatory variable(s) and interaction terms (if appropriate). [1]/term
- (C) Write the degrees of freedom below the response variable, each explanatory variable, and the error term in the model [1]/term
- (D) Complete the first two columns of the ANOVA table [2]/term
- (E) State the name of the analysis, from the following list.
t-test, one-way ANOVA
regression (one explanatory variable), multiple regression (two or more explanatory)
2-way ANOVA = 2 nominal scale (categorical) explanatory variables [1]
none of the above.

1. Daniel (*Biostatistics* 1995, p234) reported cell diameters (μ m) of 40 lymphocytes and 50 tumor cells obtained from biopsies of tissue from patients with melanoma. Do cancerous and non-cancerous cells differ in diameter ?

A. <u>name</u> <u>symbol</u> <u>scale</u>

D. <u>source</u> <u>df</u>

B. _____ = _____ + ϵ

C.

E.

2. Does birth weight depend on maternal smoking, as well as gestation period and maternal weight ? Selvin (*Practical Biostatistical Methods*, 1995, Duxbury Press) reported birth weights of first infants (grams), gestation period (weeks), maternal smoking (number of cigarettes per day), and maternal weight (kg) for 48 women over 40 years old. (Assume no interactive effects of explanatory variables on the response variable).

A. <u>name</u> <u>symbol</u> <u>scale</u>

D. <u>source</u> <u>df</u>

B. _____ = _____ + ϵ

C.

E.