

## 625.661 Statistical Models and Regression

### Module 6 Discussion Question

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Please complete all the following problems.

1. Two different treatments are of interest. The first treatment has two levels (  $A$  versus  $B$  ). The second treatment has two levels (  $a$  versus  $b$  ). Denote by  $y$  the targeted response variable.
  - a) Construct a multiple linear regression model to estimate the difference in the expected value of  $y$  between  $A$  and  $B$  , the difference in the expected value of  $y$  between  $a$  and  $b$  , and the difference in the expected value of  $y$  among the four treatment combinations  $Aa, Ab, Ba, Bb$ .
  - b) Construct an analysis of variance model to estimate the difference in the expected value of  $y$  between  $A$  and  $B$  , the difference in the expected value of  $y$  between  $a$  and  $b$  , and the difference in the expected value of  $y$  among the four treatment combinations  $Aa, Ab, Ba, Bb$ .