1. Analysis of Covariance (ANCOVA) can help answer the question: are there differences, with respect to the population mean of a response variable, across groups, adjusting for several continuous variables thought to be correlated with the response?

   True

   False

2. Analysis of Covariance (ANCOVA) can help answer the question: how does the relationship between a continuous response and continuous predictor differ, on average, across groups?

   True

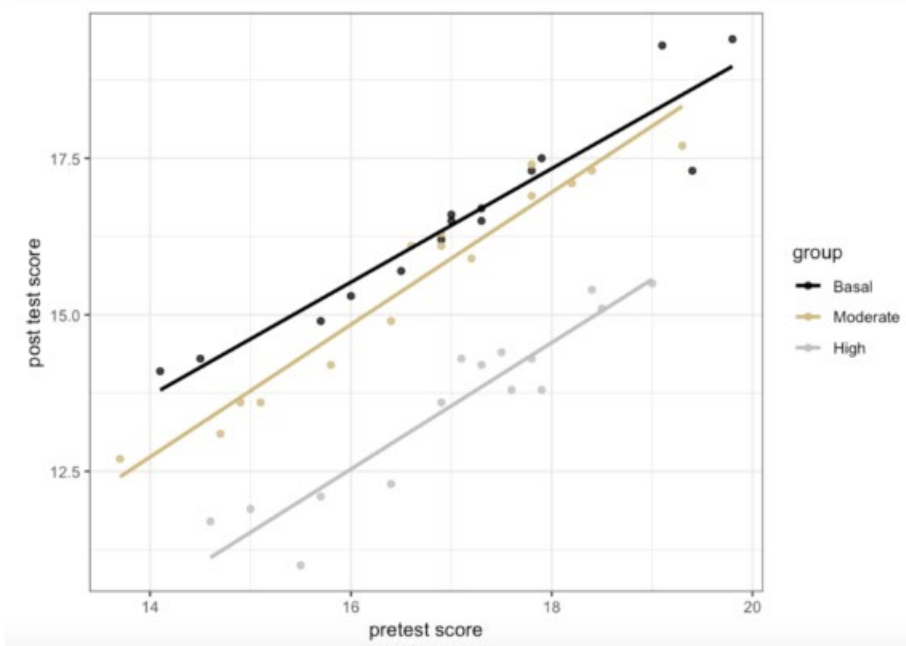
   False

3. Social science researchers are sometimes interested in what social or cultural factors influence happiness. One such research question might be: are married people happier than non-married people? Select the most promising modeling approach for answering this question.

   An ANOVA model with a continuous happiness measure as the response and a two-level factor that records marital status as a predictor/explanatory variable.

   Since other variables like income level influence happiness, an ANCOVA model with a continuous happiness measure as the response, a two-level factor that records marital status, and other variables like income level as a predictors/explanatory variables.

   Since other variables like income level influence happiness, a multiple linear regression model with a continuous happiness measure as the response, a two-level factor that records marital status, and other variables like income level as a predictors/explanatory variables.



4. The plot below comes from an analysis assessing the impact of three exercise plans on anxiety levels. Anxiety levels, measured using an anxiety score, were reported before and six months after the implementation of the exercise plan. The pretest (the test reported before the implementation of the exercise plan) was used as a covariate. The variables are:

   1. posttest: anxiety score measured after six months of the implementation of the exercise plan. (Response)
   2. pretest: anxiety score measured before the implementation of the exercise plan. (Covariate)
   3. group: exercise plan. Three levels: basal (base level/no exercise); moderate exercise; high exercise. (Factor predictor/explanatory variable)

   Based on the plot below, when compared to a moderate exercise plan, a high exercise plan appears to increase anxiety levels, on average, controlling for pretest anxiety score.

   True

   False

5. The plot below comes from an analysis with assessing the impact of three exercise plans on anxiety levels. Anxiety levels, measured using an anxiety score, were reported before and six months after the implementation of the exercise plan. The pretest (the test reported before the implementation of the exercise plan) was used as a covariate. The variables are:

   1. posttest: anxiety score measured after six months of the implementation of the exercise plan. (Response)
   2. pretest: anxiety score measured before the implementation of the exercise plan. (Covariate)
   3. group: exercise plan. Three levels: basal (base level/no exercise); moderate exercise; high exercise. (Factor predictor/explanatory variable)

   Based on the plot below, moderate exercise does not appear to be associated with a significant decrease in post test anxiety score, but high levels of exercise do appear to be associated with such a decrease.

   True

   False