Stats for Clinical Trials, Math 150
Jo Hardin
Homework # 9, Due: Thurs, 11/11/10

1. Explain the role of bias in the truth of published findings. That is, explain why as bias goes up the PPV goes down (corollaries 4 and 5). [Hint: explain the role of α and β. Feel free to plug in actual numbers.]

Using the Duchenne Muscular Dystrophy (DMD) data from HW 8:

2. Consider the following three models:

```
new.group <- ifelse(group=="normal",0,1)
1. new.group~log(CK)
2. new.group~CK + H + CK:H
3. new.group~CK+H+PK+LD
```

   (a) Which model is best according to AIC? Explain.

   (b) Which model is best according to BIC? Explain.

   (c) Which model is best according to AUC (area under the ROC curve)? Explain.
   ```
   model.pred <- prediction(fitted(logisticmodel), truevalues)
   performance(model.pred,measure="auc")
   ```

   (d) Provide the ROC curves (1-specificity on the x-axis; sensitivity on the y-axis) for each model.