Quiz 2, 10 minutes

1. Consider a linear model with 3 predictors, A, B, C. The following table gives the RSS for each combination of predictors in a linear model.

none	A	B	C	A,B	A,C	B,C	A,B,C
6	5	4	3.5	2	2.5	3	0.5

   1.1 Which candidate model with 1 predictor is selected by backward stepwise selection?
   1.2 Assume that additionally $\hat{\sigma}^2 = 0.1$ and $\log n = 5$. Which model will be selected by best subset selection with *AIC*?

2. Assume you have 4 predictors. Which statements are true?
   (a) Forward stepwise selection and backward stepwise selection will always select the same model with 1 predictor.
   (b) Forward stepwise selection and best subset selection will always select the same model with 1 predictor.
   (c) Backward stepwise selection and best subset selection will always select the same model with 3 predictors.

3. Comparing model selection based on AIC and BIC when $\log n = 33.2$, which of the following statements are true?
   (1) There are cases when BIC will select models with fewer predictors.
   (2) Sometimes AIC and BIC will select models with the same number predictors.
   (3) AIC and BIC will never select the same model.