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Quiz: Model Building and Effect Selection

*Select the best answer for each question. When you are finished, click **Submit Quiz**.*

1. In forward selection, after a variable is added to the model, it can be removed if it becomes non-significant later.

   - ○ *a.* true
   - ◉ *b.* false

2. Given the information in this summary of variable selection, which stepwise selection method was specified in the PROC REG step?

Step	Variable Entered	Variable Removed	Number Vars In	Partial R-Square	Model R-Square	C(p)	F Value	Pr > F
1	RunTime		1	0.7434	0.7434	3.3432	84.00	<.0001
1	Age		2	0.0213	0.7647	2.8192	2.54	<.1222

   - ○ *a.* FORWARD
   - ○ *b.* BACKWARD
   - ◉ *c.* STEPWISE
   - ○ *d.* Not enough information is given.

3. When you interpret *p*-values from models that are chosen using any automated variable selection technique, which of the following should you be cautious about?

   - ○ *a.* incorrect calculation of degrees of freedom
   - ○ *b.* biases in parameter estimates, predictions, and standard errors
   - ○ *c.* *p*-values that tend to err on the side of overestimating significance
   - ◉ *d.* all of the above

4. When you add predictor variables to a model, which of the following values tend to increase or stay the same (and can never decrease)?

   - ◉ *a.* R-square
   - ○ *b.* adjusted R-square
   - ○ *c.* *F* statistic

- *d.* none of the above
- *e.* all of the above

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5. Which of the following statements is true about information criteria such as AIC, AICC, BIC, and SBC?

   - *a.* Formulas for all information criteria begin with the same calculation.
   - *b.* The penalty term to assess the complexity of the model enables information criteria to be a useful means of comparing models with a different number of parameters.
   - *c.* The best model is the one with the smallest information criteria value.
   - *d.* All of the above.

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