

1. **Problem**

Under the assumptions of the Gauss-Markov theorem the errors of a linear regression model need to be:

- (a) homoscedastic
- (b) identically distributed
- (c) zero
- (d) uncorrelated
- (e) normally distributed

Solution

Under the assumptions of the Gauss-Markov theorem the errors of a linear regression model need to be uncorrelated, homoscedastic, and with mean zero.

- (a) True. The errors need to be homoscedastic with finite variance.
- (b) False. No distribution assumption is needed.
- (c) False. Only their conditional expectation needs to be zero.
- (d) True. The errors need to be uncorrelated.
- (e) False. No distribution assumption is needed.