

You can work together, but you must write up your solutions independently. Be sure to show how you derived your solutions.

For the simple linear regression model $Y_i = \alpha + \beta X_i + \epsilon_i$,

1. Find the method of moments estimator of β .
2. Find the MLE of β .
3. To test $H_0 : \beta = 0$,
 - (a) derive a LRT test.
 - (b) derive a Wald test.
 - (c) derive a score test.

Be explicit about the assumptions you are making and include any equations you solve in addition to the final answer.