ECO138 Quiz 5 (May 18, 2018)

ID/Name:

Given Utility Function: $U(x_1, x_2) = x_1^2 + 10x_1x_2 + x_2^2, subject\ to\ 10x_1 + 25x_2 = 1000$ (Budget Constraint), answer the following questions.

1. Solve for X1* , X2* and λ.

2. Check 2nd order condition using bordered Hessian Matrix.

3. When the budget (=1000 currently) increased by one unit, how much U is expected to increase from the optimal level? Use Envelope Theorem to answer this question.

4. When the price of x1 increased by one unit, how much U is expected to change from the optimal level? Use Envelope Theorem to answer this question.