Problem 3

Maximum Likelihood Estimation

3.1) Log Likelihood 🡪

3.2) The likelihood is:

Using the likelihood function:

Let the derivative of with respect to be zero:

By solving for , we get MLE, which is

3.3)

3.4) For Y1:

Let the derivative of with respect to be zero:

By solving for , we get the MLE, which is

For Y2:

Let the derivative of with respect to be zero:

By solving for , we get the MLE, which is