Part A questions:

(The error for LU and QR are so close to x axis that they overlap with it. The reason is that these two errors are too small compared to the other one.)

1. Calculating an inverse matrix directly to find solution defeats the purpose of making LU and QR factorization methods.
2. Using QR factorization is much better than using LU factorization. If we focus on square matrices, QR factorization split the system Ax = b into two parts: Qy = b and Rx = y, where Q is an orthogonal matrix and R is an upper triangular matrix. Since the condition number for any orthogonal matrix is 1, the first step Qy = b has no error amplification at all. Then cond(QR) would be simply equal to cond(R), which minimizes the error of solving the entire system. This explains why QR factorization is more stable and accurate than LU factorization.