Homework #10

Problems from the textbook:

Problems 20.2, 21.6, 22.1, 23.1, 24.1, 24.2(a),(c). See hints below!

Hints for 21.6: (1) Suppose A is $(m \times m)$. It is enough to show that after one step of LU decomposition (i.e., clearing the first column) the $(m-1) \times (m-1)$ bottom-right submatrix remains strictly diagonal dominant. Prove this, and explain how the rest follows by induction. (2) If you cannot see a proof right away, practice with a (3×3) matrix first.

Hint for 22.1: Assume first that you have a good matrix that does not require any row interchanges.