Homework: 5

Due October 27. Solve 4 of the following 5 problems:

1. Trefethen 20.1
2. Trefethen 21.6
3. Trefethen 22.1
4. Let A be symmetric and positive definite. Show that $|a_{ij}|^2 < a_{ii} \, a_{jj}$.
5. Let A and A^{-1} be given real n-by-n matrices. Let $B = A + xy^T$ be a rank-one perturbation of A. Find an $O(n^2)$ algorithm for computing B^{-1}. Hint: B^{-1} is a rank-one perturbation of A^{-1}.