Prof. Ming Gu, 861 Evans, tel: 2-3145
Office Hours: TuWTh 12:00-1:30PM
Email: mgu@math.berkeley.edu
http://www.math.berkeley.edu/∼mgu/MA2212008F

Math221: Matrix Computations
Homework #4, Due Sept. 24, 2008

- Problems 2.16, 2.19, 2.21.
- Hager's Condition Estimators:
  - Download hager.m and counterexample_hager.m from the class website. Run these codes for different values of n and `scl`. Compare the output of hager.m with the true matrix 1-norm for values of `scl` ranging from 10^5 to 10^{50}.
  - Perform an analysis in exact arithmatic to show that Hager's condition estimator fails to correctly estimate the matrix 1-norm on the counter example in counterexample_hager.m for large values of `scl`.
  - Perform an analysis in floating point arithmatic to explain why Hager's condition estimator might estimate the matrix 1-norm correctly for really huge values of `scl`.
- Download counterexample_GEPP.m and produce matrices with very large element growth with GEPP for $n = 40, 80, 120$. Report the element growth factors.