

Homework Set #3, Math 451/551

1. Implement Algorithm 8.1, if you have not done so already. Call this `mgs.m`.
2. You will need `eighttwo.m` from the prior assignment. Run the code `eighttwo.m` (`mgs`) on 3 random matrices of size $(n = 80, m = 80)$, $(n = 80, m = 160)$, $(n = 80, m = 320)$ and demonstrate that QR recovers, to within numerical precision, the random matrix you started with. Also, note what happens to the norm as m increases.
3. 9.1(a).
4. 9.2(a,b).
5. Implement Algorithm 7.1 and call this code `clgs.m`.
6. Use implementations of alg 7.1 (`clgs`) and 8.1 (`mgs`) to duplicate experiments 2 and 3 of lecture 9. Produce plot like Fig 9.1. Discuss results.