

Due Dec 7,10,11

COURSE WEBSITE: "<http://www.cs.umd.edu/gasarch/652/652.html>"

(Just one problem- worth 100 points)

Consider the following problem: Given a set of finite matrices over a finite field, the size of the field, and a number  $s$ , is  $s$  the size of the group generated by the set of matrices under matrix multiplication?

Show that this problem is in  $AM$ .

Use the paper *Trading Group Theory for Randomness* by Babai. The result is in Section 5. You may take as known section 1-4 and the Lemma 5.4 (which is proven in a different paper).