Homework 2 for 509, Homological algebra, Spring 2017
due Wednesday, May 24

Problem 1. Let R be a Frobenius algebra over a field k. Show that the global dimension of R is either zero or infinity.

Problem 2. Let k be a field of positive characteristic p.

(1) Show that the group algebra kG for a finite group G is Frobenius (in fact, symmetric).
(2) Show that the restricted enveloping algebra $\mathfrak{u}(\mathfrak{gl}_n)$ is Frobenius.