Permutation groups — graduate course Spring 2014

GRADUATE COURSE IN MATHEMATICS

ASSIGNMENT NO. 2

1. Fill in the details of the proof of Burnside's theorem on socle of 2-transitive groups (the part that avoids appealing to the theorem of Frobenius); see handouts. **(20 points)**

2. Write up the proof of Burnside's theorem on groups of prime degree. You may follow the notes that I've posted, or do it your own way. Try to make the proof as elegant as possible, but provide details at the same time. Do not use some heavy machinery that's not covered in this course or in a standard undergraduate algebra course. Polish the proof as if it was going to be published in a paper. **(80 points)**