Latin Squares | Instructor: Padraic Bartlett

Homework 6: Latin Squares and Magic

Week 3 | *Mathcamp 2012*

Attempt all of the problems that seem interesting, and let me know if you see any typos! (+) problems are harder than the others. (++) problems are currently open.

1. Construct a magic square of order 5 that does not come from the construction we developed in class.

2. For a 4×4 magic square M, what are the possible values of s such that the row/column/diagonal sums of M are s?

3. In our lecture, we said that we can construct a pair of orthogonal Latin squares for any n that is both odd and not a multiple of 3. Does our construction work for any other values of n?

4. Even though our construction does not work for even orders, find two mutually orthogonal diagonal Latin squares of order 4 and order 8.

5. Show that there are not two mutually orthogonal diagonal Latin squares of order 6.

6. Despite the above question, find a 6×6 magic square.