

Exercise No. 7
Peer-To-Peer Networks
Winter 2012/2013

Exercise 1 *Galois Fields*

1. Compute the tables for the logarithm of $GF[2^3]$. Use the irreducible polynomial $x^3 + x + 1$.
2. Calculate the following values in $GF[2^4]$.
 - (a) $3 * 14$
 - (b) $7/12$
 - (c) $3/1$

Exercise 2 *Game theory*

1. Extend the payoff matrix from the Rock-paper-scissors game in the lecture to include a well. The well wins against rock and scissor, but loses to paper.
2. Is there now a pure Nash equilibrium / a dominant strategy?
3. Can you provide a mixed strategy that is optimal?
4. If you opponent never chooses rock, but takes the well with $p = 0.4$ and scissors and paper with equal probability: What mixed strategy should you choose to maximize your expected win?