

XOR-counts measure the efficiency of multiplication in finite fields of characteristic 2. In the first chapter we define two XOR-counts (the direct XOR-count and the sequential XOR-count) and present detailed proofs of some propositions from the paper from Lukas Kolsch about the XOR-counts of inverse matrices and permutation similar matrices. It seems that the case when the direct XOR-count is lower than the sequential XOR-count is rare. We will explore those cases in the second chapter. Some of them were already described in the paper from Lukas Kolsch and we prove that they occur only for matrices with order higher or equal to six.