

Problem of the Week-3: Counting Invertible Matrices

Let \mathbb{F}_q be the finite field with q elements. Find the number of $n \times n$ invertible matrices over \mathbb{F}_q . Explain your answer. If you pick a random 3×3 matrix over \mathbb{F}_4 , is it more likely to be invertible, or not? Justify your answer.

As always prove your answer.

Posting Date 2/10/12. Submit solutions to Noah Aydin, Mathematics Department, RBH 319 (e-mail or hard-copy, but hard copy submissions must include a time stamp) by 4 pm on 2/24/12.