Reading assignment, I

Theorem:(Valiant)

Computing the permanent of an $(n \times n)$-matrix with entries from $\{0, 1\}$ is $\sharp\mathbf{P}$-complete.

Proof:

1. It is in is $\sharp\mathbf{P}$. It counts perfect matchings or cycle covers.

2. Next we show that for matrices with values in $\mathbb{Z}$ (integers) we can simulate $\sharp 3 - SAT$.

3. Then we show how to get rid of integers and negative values.

The proof is in

> C. Papadimitriou, Computational Complexity, Addison-Wesley 1994, chapter 18, pp. 439-447.