# Practice Problems: PIT and Karger's Algorithm

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1. Compute the running time of the polynomial identity testing algorithm discussed in the class where the input polynomial is over a finite field $\mathbb{F}$ and its total degree is $d < |\mathbb{F}|$.

2. In the $k$-cut problem, the input is a unweighted graph and the goal is to compute the minimum number of edges that needs to be removed to partition the graph into $k$ components. Adapt the Karger's min-cut algorithm to design a randomized $\mathcal{O}(n^{2k})$-time algorithm for the $k$-cut problem.

3. Suitably modify the Karger's mincut algorithm to have a randomized algorithm for computing a minimum cut in a positive edge-weighted graph.