1. Present a common CRCW PRAM algorithm that finds the maximum of $n$ arbitrary elements in $O(1)$ time using $n^{1+\epsilon}$ processors for any fixed $\epsilon > 0$.

2. Present a CREW PRAM algorithm to multiply two given $n \times n$ matrices in $O(\log n)$ time. What is the processor bound?

3. Let $\pi_2$ be a problem for which there exists a deterministic algorithm that runs in time $2^{\sqrt{n}}$ (where $n$ is the input size). Prove or disprove:

   If $\pi_1$ is another problem such that $\pi_1$ is polynomially reducible to $\pi_2$, then $\pi_1$ can be solved in deterministic $O(2^{\sqrt{n}})$ time on any input of size $n$.

4. Assume that there is a polynomial time algorithm CLQ to solve the CLIQUE decision problem. Show how to use CLQ to determine the maximum clique size of a given graph in polynomial time.