1. In the Covex-Hull algorithm, we assumed that no two points have the same $x$ or $y$ coordinate. Now, suppose there are two points (just two points) that may share a common $x$ coordinate and also there are some points that may share a common $y$-coordinate. Will the algorithm still work? If not, how to make it work?

2. Write a divide-and-conquer algorithm $\text{Power}(a, n)$ that computes the number $a^n$. What is the time complexity of your algorithm? Your algorithm must work in $o(n)$, little o of $n$, time.

3. The running time of an algorithm $A$ is described by the recurrence $T(n) = 7T(n/2) + n^2$. A competing algorithm $A'$ has a running time of $T'(n) = aT'(n/4) + n^2$. What is the largest integer value for $a$ such that $A'$ is asymptotically faster than $A$ (i.e., $T'(n)$ is asymptotically smaller than $T(n)$).