Let $n$ be the count of numbers in a collection of base10 numbers. Suppose zero is the minimum number and $k$ is the maximum number in the collection. The time complexity of counting sort is

This is off the top of my head...

You have to process the array of $n$ numbers, so that takes $\theta(n)$ time. Then you have to process the counts array, which takes $\theta(k)$ time. The overall time depends on which is bigger, $n$ or $k$.

Thank you!