1. **Suffix array construction:** consider the string $S = cabcccaccccb$. Let S_i be the suffix starting at position i, indexed from 0. We want to construct the suffix array for S in linear time.

Step 1: What are R_1 and R_2 for S? How many special characters do we need at the end of each string? Sort the suffixes of the concatenation of R_1 and R_2. What are the roles of radix sort and recursion in this step?

Step 2: Sort the suffixes beginning at the indices i where $i \mod 3 = 0$. How can we use what we've already done in Step 1?

Step 3: Merge the two lists of sorted suffixes. If we are comparing S_i and S_j, where $i \mod 3 = 0$, how do the cases $j \mod 3 = 1$ and $j \mod 3 = 2$ differ?

2. Let $B = nkknak\$reia$ be the Borrows-Wheeler transform of a string S. Find the original string S.

3. Say we wanted to create the DC6 algorithm. Which indices should we sort in Step 1 (i.e. which numbers mod 6), and which should we sort in Step 2? What general property are we looking for when dividing up the indices?