

Permutations Again

First, a problem from last time:

Problem 1. How many arrangements are there of the letters in "CARAVAN"?

Problem 2. Remember from last time there are six permutations of "ABC". Can you list all the permutations so that each permutation can be made from the last by an exchange of two letters, and so that you can go from the last permutation back to "ABC" also with an exchange of two letters?

Problem 3. Also remember from last time there are 24 permutations of "ABCD". Can you list all the permutations so that each permutation can be made from the last by an exchange of two letters, and so that you can go from the last permutation back to "ABCD" with an exchange of two letters?

Problem 4. Finally, can you extend your method to work for a five letter word like "ABCDE"?