Permutations

Permutations can be thought of as re-orderings of letters of a word.

Problem 1. List all the re-ordering of the letters of "AB". How many different orderings are there?

Problem 2. List all the re-ordering of the letters of "ABC". How many different orderings are there?

Problem 3. List all the re-ordering of the letters of "ABCD". How many different orderings are there?

Problem 4. Can you build an re-ordering of "ABCD" from an re-ordering of "ABC"? How many re-orderings of "ABCD" can you build from each re-ordering "ABC"? Use this to figure out how many re-orderings of "ABCDE" there are without having to list them all.

Problem 5. How many rearrangements of letters of the word "SPECIAL" are there? (Hint: use the results of problem 4.)

Problem 6. Which word has more arrangements of letters: "MEAT" or "MEET"? Why? How many arrangements does each word have? How many arrangements does "MEEM" and "MEEE" have?

"MEAT":

"MEET":

"MEEM":

"MEEE":

Problem 7. How many arrangements are there of the letters in "CARAVAN"?

Problem 8. How many arrangements are there of the letters in "MATHEMATICAL"?