1. There are three types of padlocks available in a shop. For opening the first type, it is necessary to push four buttons out of ten (buttons are labeled with numbers 0-9). For opening the second type, you have to push six buttons out of ten (each button can be pushed only once). The third type is a padlock with four dials. Which type is the best? (Hint: how many possible "passwords" exist for each padlock?)

(The third one)

2. There are 10 girls and 12 boys in the classroom and the teacher must put together a team of 3 students for a science competition.
    a) If he picks the students completely randomly without any additional condition, in how many ways can the team be selected?
    b) What if the team has to have 1 girl at least?

(1540, 1320)

3. You want to buy a car and luckily, there is a special sale in the car salon. If you buy a car with standard equipment, you will get three extra items from the above-standard equipment for free (there are 7 possible "extra" items). In how many ways you can randomly select three items from the above-standard equipment? (35)
4. How many anagrams can be built from the word
    a) MATH
    b) COMBINATORICS? (24, 778 377 600)
5. How many 4-letter passwords can be created from all the alphabet characters (assume 26 characters in alphabet),
    a) if we don't distinguish between UPPER and lower case?
    b) if we distinguish between UPPER and lower case?
    c) if you can also use numbers?

(456 976, 7 311 616, 14 776 336)