1. The local diner is thinking of offering a special value meal for breakfast each day that consists of a coffee, eggs, and a meat. First, though, they would like to count how many people order this type of breakfast currently. They will then do another count after they put the special value meal on the menu.

a. The next day the manager examines Tuesday's tickets. He sees that again 80 people ordered coffee, eggs, or meat. However, on Tuesday 75 people ordered coffee, 65 people ordered eggs, and 45 people ordered meat. 60 people ordered coffee and eggs; 40 people ordered coffee and meat, and 35 people ordered eggs and meat. Use the formula for "inclusion/exclusion: 3 sets" to calculate the number of people who ordered coffee and eggs and meat.

b. Draw a Venn diagram to show Tuesday's data and put the correct number in each of the 8 disjoint regions.

2. We want to require users to enter a password to access our new application but we haven't decided the format of the password. For each of the following format options, assume that order matters. The characters include 26 lower case letters, 26 upper case letters and 10 digits.
Count the number of unique passwords generated by each of the following password formats.

a. A password consists of 6 digits. No repetition is allowed

b. A password consists of 6 characters. The first can be any character. The second can be any character except an X, Y, 0 or 1. The next 4 characters are all digits. Repetition is allowed.