Counting: product rule and sum rule

Exercise 1:
How many strings are there of four lowercase letters that have the letter x in them?

Exercise 2
How many strings of four decimal digits
   a) Do not contain the same digit twice?
   b) End with an even digit?
   c) Have exactly three digits that are 9s?

Exercise 3:
How many license plates can be made using either three digits followed by three letters, or three letters followed by three digits?

Exercise 4:
How many subsets of a set with 100 elements have more than one element?

Exercise 5:
How many bit strings of length 10 contain either five consecutive 0s or five consecutive 1s?

Exercise 6:
Use a tree diagram to find the number of bit strings of length four with no three consecutive 0s.

Exercise 7:
From a group of 13 men, 8 women, 2 boys and 4 girls,
   (a) How many ways can a man, a woman, a boy and a girl be selected?
   (b) How many ways can a male and a female be selected?
   (c) How many ways can a person be selected?

Extra credit:

How many numbers in the range 100-999 have no repeated digits? (For example, 110 and 211 have repeated 1, while 101 is OK) Now how many of them are even? (be careful!).