Use a counting argument to establish each of the following. Make sure you write in complete sentences and justify each step of your argument.

1. A password consists of one of the 26 letters $A – Z$ followed by 4 numbers chosen from $0, 1, \ldots, 9$. How many different passwords are possible, if:
   (a) no repetition is allowed?
   (b) repetition is allowed, but the 4 numbers cannot be all the same?

2. How many non-repeating lists of length 6 formed using the 12 letters $A – L$ contain:
   (a) one $A$ or one $L$ but not both?
   (b) at least one of the letters $A$ and $L$?

3. How many 20-digit numbers contain exactly one 7?

4. How many $n$-digit numbers contain at least one 3?

5. In how many ways can 5 children and 3 adults be seated in 2 rows each having 4 chairs, if there must be at least one adult in each row?