Practice Problems.

1. How many passwords may be created from two letters (A-Z) followed by 3 digits (0-9)? What if upper and lower case letters are allowed, and are considered different from one another? What if all characters in the password must be different from one another?

2. How many ways can a company with 1 president, 6 vice presidents, 20 managers, and 22 secretaries downsize to 1 president, 5 vice presidents, 15 managers and 1 secretary?

3. How many different ways can a poker hand be a "full house"? Same question for "straight", "flush" and "two pair".

4. Lord Voldemort's only pleasure comes from cursing Muggles and kicking puppies. Suppose he has 10 Muggles and 5 puppies in his dungeon. In how many ways can he select 4 Muggles to curse and 3 puppies to kick?

5. A genii has the power to grant 100 wishes of identical magical content. How many ways can he distribute these wishes to 10 Discrete Mathematics students if each student must get at least 3 wishes, and the genii is required to give away all of his wishes?