

1. Simplify  ${}_{m+2}C_m$  Leaving NO factorials in your answers.
2. How many different letter arrangements can you make using all the letters in the word TOMORROW?
3. How many different five letter arrangements can you make using the letters in the word SIGNATURE if the first letter must be a vowel and the second letter must be a T?
4. You are opening a sandwich shop. You will offer 5 different types of bread, 6 different types of meat, 10 different types of vegetables, and 4 different types of dressings. How many different sandwiches can you make if you use one type of bread, one type of meat, two different vegetables, and one dressing?
5. I have 20 students that came in for extra help before the quiz. To reward them for working so hard I am going to put all of their names in a bag and pull three names out to win a homework pass. How many ways can I pick the winners?

6. I need to pick a new password for my iPhone. The password consists of 4 numbers and each number is a digit.

a. How many passwords do I have to choose from if there are no repeats?



b. How many passwords do I have to choose from if repeats are okay?

c. How many passwords do I have to choose from if I do not want all 9s but I can have repeats?

7. Eight girls on the Color Guard team will try-out for Captain and assistant to the Captain, how many ways can I select the two positions?

9a. How many ways can 10 students line up at the door?

9b. How many ways can 10 students line up at the door if Tammy, Sam, and Chuck want to be next to each other.

10. The school is forming a committee of 5. There are 12 students, 7 boys and 5 girls, to pick from.

a. How many ways can the committee have 3 girls and 2 boys?

b. How many ways can the committee have at least 3 boys?