HONORS PRECALCULUS HOMEWORK #30

1. You are proposing eliminating statewide DMV’s and instead making the DMV a federal institution. i.e. everyone has US license plates instead of state plates. Your plan is to create a license plate with numbers and letters. You propose having a license plate with 6 **different** digits or letters. How many different unique license plates could be made? Would this be enough? Would 5 digits or letters be enough?
2. YOU WANT TO KNOW HOW MANY DIFFERENT COMBINATIONS (order does not matter) OF PEOPLE CAN SEAT THEMSELVES AT A TABLE WITH 8 SEATS IF THERE ARE 14 PEOPLE.
3. What if order does matter? Now many different ways can you seat 8 people at a table from a group of 14?

4.) You are playing cards (Gin Rummy) with a 52 card deck. How many different 10 card hands are possible?

1. How many different ways are there to arrange the letters in the word MATH?
2. How about the word PERMUTATION? Careful. This is harder because T is repeated and so there is no way to distinguish the T’s which changes the normal answer.

7.) In how many ways can 5 different mathematics books be placed on a shelf if the two algebra books are to be placed next to each other?

1. Consider a simple lottery that you are holding to raise money for charity at MB. You must match 4 white balls (in any order) and the gold ball to win. There are 20 white balls and 10 Gold balls to choose from. What are the odds of winning this lottery?

If each ticket costs $1 and the payout prize is $40,000, then what is the expected value of playing?