CSCI 301, Winter 2018
Math Exercises # 2

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Due date: Tuesday, January 30, midnight.

Exercises for Section 3.1

4. Five cards are dealt off a standard 52-card deck and lined up in a row. How many such lineups are there in which all 5 cards are of the same suit?

Answer: $\binom{13}{5} * 4$ because there are 13 cards in each suit, then we choose 5 cards out of those, and multiply by 4 because there are 4 suits. $= 1287 * 4 = 5148$

Exercises for Section 3.2

8. Compute how many 7-digit numbers can be made from the digits 1,2,3,4,5,6,7 if there is no repetition and the odd digits must appear in an unbroken sequence. (Examples: 3571264 or 2413576 or 2467531, but not 7234615.)

Answer: $4 * 3! * 4! = 576$

Exercises for Section 3.3

12. Twenty-one people are to be divided into two teams, the Red Team and the Blue Team. There will be 10 people on the Red Team and 11 people on the Blue Team. In how many ways can this be done?

Answer: $\binom{21}{10} * \binom{11}{11} = 352716$

Exercises for Section 3.5

8. This problem concerns 4-card hands dealt off of a standard 52-card deck. How many 4-card hands are there for which all 4 cards are of different suits or all 4 cards are red?

Answer: $13^4 + \binom{26}{4} = 43511$