Name: _____ Group _____

1) BCR

a) Consider the random experiment of spinning a spinner with numbers from 1 – 15 on it. If the spinner is spun 3 times, how many possible outcomes are there?

b) Arizona plates consist of three digits followed by three letters.

i) How many different license plates are possible?

ii) What is the probability that a particular license plate doesn't have any repeating digits or letters? - BOARD

2) Permutation

a) How many ways can I select the order of the top 3 students in this class (class size = 12)?

b) What happens if out of the 9 dice, we have 3 white dice, 4 speckled red dice and 2 plane red dice, if we want to keep the different types of dice together, how many possible arrangements are there? - BOARD

3) Combination

a) In an attempt to attract people to buying Kindle books, a merchandiser states that if a person buys 4 Kindle books, that person will get two free. Currently, this merchandiser has 60 Kindle books in stock. How many possibilities does the person have to selecting the 6 books?

b) The IRS decides that it will audit the returns of 3 people from a group of 18. If 8 of the people are women, what is the probability that all 3 of people audited are women? - BOARD

4) SB

a) How many different sets of POSITIVE numbers x, y, z and w are solutions for the following equation: $x + y + z + w = 140$?

b) Ten indistinguishable purple M&M's are distributed among Andy, Barbara, Chris and Dominique. It is not required that any one person receives an M&M. How many different ways are there to distribute the candy? BOARD

5) Ordered Partition

a) How many different possible hands are there in a 5-card draw poker game with 5 players?

b) If you want to partition your class of 30 students into 7 groups, how many possible ways can you do this if the group sizes are 3, 4, 5, 5, 5, 4, and 4? BOARD

6) Miscellaneous – Combinations of different types

a) An ordinary deck of 52 playing cards is shuffled and dealt. What is the probability that – BOARD (instructor)

i) The 7^{th} card is an ace?

ii) The 7^{th} card is the first ace?

b) Birthday Problem: What is the probability that at least two students in a class of size 40 have the same birthday? Assume that this is NOT a leap year and that the probability of having a birthday on any given day is the same.

c) What is the probability of a full house in a Poker hand (Chapter 23)?

d) What is the probability of a 4 ‘6’s in the upper section of Yahtzee (Chapter 23)?