1. Answer the following about the sequence of numbers between 5 and 125 (inclusive):
   a. How many integers are between 5 and 125 (inclusive)?
   b. How many integers are between 5 and 125 (inclusive) which are divisible by 3?
   c. How many integers are between 5 and 125 (inclusive) which are divisible by 5?
   d. How many integers are between 5 and 125 (inclusive) which are divisible by both 3 and 5?
   e. How many integers are between 5 and 125 (inclusive) which are divisible by either 3 or 5?
   f. How many integers are between 5 and 125 (inclusive) which are divisible by neither 3 nor 5?
   g. How many integers are between 5 and 125 (inclusive) which are divisible by 3 but not divisible by 5?

2. For the next set of questions, assume you have a of 6 dogs. Some dogs are big (marked with a b), some are middle sized (marked with a m), and some are small (marked with an s). These dogs are {Alpi (b), Bingo (s), Congo (b), Delfi(s), Elf (s), Fred (m)}. Answer the following questions about the dogs in your kennel.
   a. How many different ways can you select two dogs to take for a walk at the same time?
   b. How many different ways can you select two dogs to take for a walk at the same time assuming you can’t handle 2 big dogs at the same time?
   c. How many different ways can you assign the dogs all to leashes (assuming you have 6 leashes in 6 different colors)?
   d. How many different ways can you assign the dogs all to leashes (assuming you have 6 leashes in 6 different colors), but also assuming you have only two leashes that can handle the big dogs?
   e. How many different ways can you divide the dogs up for walking among your 3 volunteers – assuming each volunteer must walk 2 dogs each?
   f. How many different ways can you line up the dogs (single file) for a dog show?
   g. How many different ways can you line up the dogs (single file) for a dog show assuming the large dogs must come first, followed by the medium then the small dogs?
   h. How many different ways can you create a line in the dog show of four finalists?
   i. How many different ways can you distribute the 15 doggie treats you have (assuming the doggie treats are indistinguishable)? (note: it can be that one dog gets all of the treats - you are not trying to distribute them evenly.)
   j. How many different ways can you assign them to the 4 run areas at your kennel? (note: these “runs” are distinguishable, but you could be assigning them all to the same run or as evenly as possible.)
   k. Assuming you have 6 collars (6 different colors) and 6 leashes (6 different colors), how many ways can you assign the collars and leashes to your six dogs so they can go for a walk?
   l. Assuming you have 5 families interested in adopting dogs, how many different ways can the dogs be given to those families? (note: you are assuming there is no personal preference taken into account, and that every family wants one and only one dog.)
   m. Assuming all of your dogs are male, and the neighbor’s dog turns out to be pregnant, how many different ways could your dogs be the father of her puppies?
   n. Assuming you must take one dog of each size with you, how many different ways do you have to select your companions?