1. Suppose that 8 people meet and that each person shakes hands exactly once with each of the other people. How many handshakes does this make?

2. An abstract word is an ordered sequence of letters. The length of an abstract word is the number of letters it contains (counting repeats, so “aab” has length 3, for example). How many distinct abstract words of length 6 can be created using only the letters b, g, i, and n? (For example, one such sequence is “ggngib.”)

3. In 1693 Samuel Pepys asked Isaac Newton which of the following events was most probable:
   (a) Six fair dice are rolled independently and at least one “6” appears.
   (b) Twelve fair dice are rolled independently and at least two “6”s appear.
   (c) Eighteen fair dice are rolled independently and at least three “6”s appear.

   Compute the probability of all three of these to figure out the correct answer. (Pepys was inclined toward an incorrect answer, but Newton gave the correct answer.)

4. Suppose that you draw 5 cards at random from a standard deck of 52 cards. What is the probability that you will get at least one card of each suit?

5. (SOLO PROBLEM) Suppose that 5 men and 5 women stand in a line for a photo with an order chosen at random. What is the probability that men and women alternate in the line?