1. A sequence of n cards is to be dealt from a well-shuffled deck. How large must n be in order to make the probability of dealing at least one heart greater than 0.75?

2. Your drawer contains 6 black socks and 4 blue socks. What is the probability that you get a matching pair (either 2 black or 2 blue socks) when you select two socks at random?

3. Two urns initially each contain 4 balls which are identical except for color. Urn A contains 3 red balls and 1 green ball. Urn B contains 1 red ball and 3 green balls. You select an urn without knowing which is which (so you select urn A with probability 0.5 and urn B with probability 0.5) and another otherwise indistinguishable red ball is placed into your urn. You then draw a random ball from your urn and find that it is red. What is the probability that you selected urn A?

4. Given that the sum on a roll of a pair of fair dice comes up as 8, what is the probability of at least one of the individual rolls was a 6?

5. Joe is randomly chosen from a large population, of which 5% use marijuana. Joe is given a test that correctly identifies marijuana users 95% of the time and gives a false positive only 2% of the time. Given that Joe's test is positive, what is the probability that he is actually a marijuana user?