

Math 55 Discussion problems 14 Mar

1. What is the probability that a five-card poker hand contains a flush, that is, five cards of the same suit?
2. What is the probability that a hand of 13 cards contains no pairs?
3. In a superlottery, a player selects 7 numbers out of the first 80 positive integers. What is the probability that a person wins the grand prize by picking 7 numbers that are among the 11 numbers selected at random by a computer.
4. Which is more likely: rolling a total of 8 when two dice are rolled or rolling a total of 8 when three dice are rolled?
5. What is the conditional probability that exactly four heads appear when a fair coin is flipped five times, given that the first flip came up tails?
6. Let E be the event that a randomly generated bit string of length three contains an odd number of 1s, and let F be the event that the string starts with 1. Are E and F independent?
7. Suppose that A and B are events from a sample space S such that $p(A) \neq 0$ and $p(B) \neq 0$. Show that if $p(B|A) < p(B)$, then $p(A|B) < p(A)$.