

Probability: Homework

Mathematics 170

due November 5, 2004

1. Two six-sided dice are rolled. Find the probability that the sum on the faces is ten. (Write out the combinations that yield ten.)
2. Find the probability that in six flips of a coin, there will be *at least* 4 heads.
3. Find the probability of getting a full house in poker (three of one denomination, two of another denomination).
4. The Pennsylvania lottery has a game called “Lucky for Life” which works as follows:
 - Six numbers are chosen by the system, randomly from 1 to 38.
 - As a player, you choose six numbers also from 1 to 38.
 - If at least three of yours match up with the system’s, you win.

Find the probability of matching exactly four of the six numbers. (Hint: the actual system’s numbers are done already; all you have to worry about is the probability you’d pick them randomly. So you need to choose four correct numbers and two incorrect numbers.)

The [PA State Lottery site](#) says the odds are 1 in 371.1. (Check your answer.)