1. Suppose you flip n fair coins What is the probability of getting exactly i heads, for each i. What is the probability of getting at least i heads for each i?

1.1

1.2

2. What is the probability of an odd sum when you roll three dice.

P=P(all three are odd)+P(1odd+ 2even)=(3\*3\*3+3\*3\*3\*3)/(6\*6\*6)=0.5

3. Suppose that each of 9 people are dealt 4 cards. What is the probability that one of the people has 2 or more kings. (I recently lost a poker hand where the only way I could have lost was if someone had 2 or more kings. I had been pretty sure I was going to win).

P = 1- P(every one has 0 or 1 King)

= 1 – P(no king is selected for everyone) + P(1 king is selected for everyone) + P(2 kings are selected, but only 1 max for everyone) + P(3 kings are selected, but only 1 max for everyone) + P(4 kings are selected, but only 1 max for everyone)

= = 0.4933

4. Which event is more likely:

(a) drawing an ace and a king, when you draw 2 cards from a 52 card deck.

(b) drawing an ace and a king, when you draw 2 cards from a 13 card deck consisting of only hearts.

Please explain with calculations.

52 card has 4 aces and 4 kings, but 13 card of only hearts has 1 ace and 1 king. So that:

P(a) = (draw ace then draw king + draw king then draw ace) / (total numbers of draw 2 cards from deck)

= (4\*4+4\*4) / (52\*51) = 0.0060

P(b) = (draw ace then draw king + draw king then draw ace) / (total numbers of draw 2 cards from deck)

= (1\*1 + 1\*1) / (13\*12) = 0.0128