

LAMC – 27th of April, 2008

Andrea Brose

1. Cards

- (a) You are given a conventional deck of 52 cards, well-shuffled. What is the probability that the top card is an ace?
- (b) Again you are given a deck of cards, you count the cards (face down) and find it defective, having only 51 cards. What is the probability that the top card is an ace?

2. Cards .. again

- (a) You are given a conventional deck of 52 cards, well-shuffled. What is the probability that the top card is a king (just in case ...)?
- (b) What is the probability that the top card is a spade?
- (c) What is the probability that the top card is a king or a spade?

3. Cards .. yet again

You are dealt 13 cards from a deck of 52 cards. Find the probability that the hand contains at least one card from each suit.

4. Hats

Five people come to a party with a hat. Upon arrival they throw their hat into a closet. At the end of the party each one picks one hat at random. What is the probability that at least one person picks his/her own hat?

5. Couples

Four couples completely randomly sit down on a linear bench. Find the probability that no couple sits next to each other?

6. Cups and Saucers

A tea set has four cups and four saucers with two cups and two saucers in yellow and two cups and two saucers in orange. You place the four cups randomly on the four saucers. What is the probability that no cup is on a saucer of the same color?

7. Socks

You have taken ten different pairs of socks to the laundromat, where the washing machine ate six of your socks. In the best-case scenario you will still have seven complete pairs of socks. In the worst-case scenario you will have four complete pairs left. Show that “when things go wrong, they really go wrong”.