# 3 Card Problem Analysis/Explanation

In the 3 Card Problem, there is one method which pulls ahead of the rest – picking the same color will win two out of three times, a 66% success rate.

Example scenario: let’s begin by showing the three possible cards.

Side 1:

Side 2:

Let’s say a card is picked, and the side you are shown is WHITE. We can immediately rule out the double black card.

So that means that the card pulled is either the BLACK/WHITE card, or the WHITE/WHITE card. One might think that must mean there’s a 50% chance that the opposite side will also be WHITE, correct? Well, not quite – we need to look at the percent chance per ***side***, not per card. There are 3 possible white sides, which means each side has a 33% chance of being the side shown.

33%

33%

33%

Of all the WHITE sides, 2/3 of them are on the WHITE/WHITE card, meaning there is a 66% chance that the drawn card is the WHITE/WHITE card. Thus, if we guess that the opposite side is WHITE, we will be correct 2/3rds of the time. In other words, the only way to lose by guessing the same color is if we have drawn the BLACK/WHITE card, which will happen 1/3rd of the time.

33%

Lose case when guessing same

66%(total)

Win case when

guessing same color

Conclusion: guessing the same color will be correct 66% of the time, because 2/3rds of the shown color sides are on the double card.