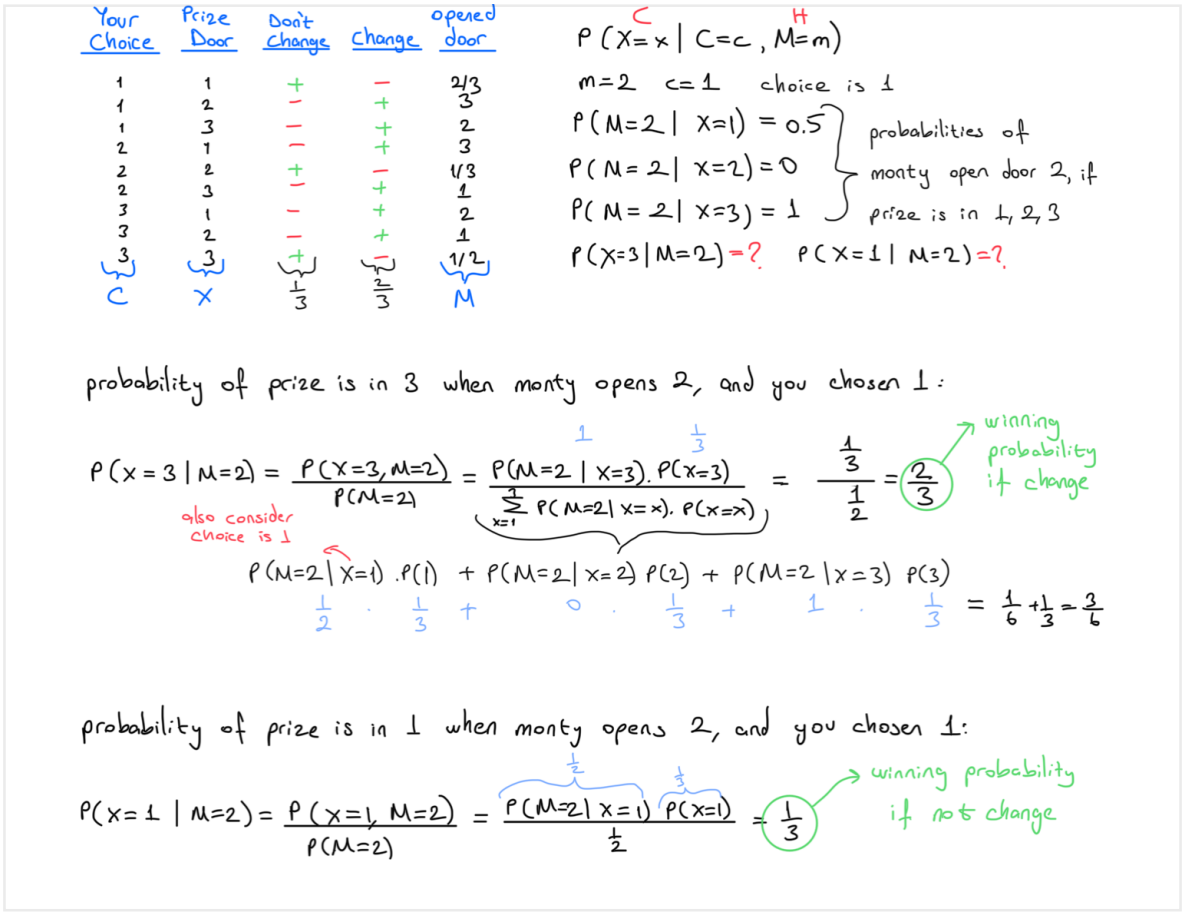
3- monty hall problem




```
num_games <- 1000000
prizes <- sample(c(1, 2, 3), num_games, replace = TRUE)
picks <- sample(c(1, 2, 3), num_games, replace = TRUE)
games <- data.frame(pick = picks, prize = prizes)

monty <- function(x) {
    doors <- c(1, 2, 3)
    choices <- setdiff(doors, x)  //finds different
elemets between two sets
    if (length(choices) == 1) {
        choices # There really is no choice
    } else {
    sample(choices, 1) # Pick one of two choices
     }
}

games["monty"] <- apply(games, 1, monty)

switched <- function(x) {
    setdiff(c(1, 2, 3), c(x["pick"], x["monty"]))
}
```

```
new_pick <- apply(games, 1, switched)
games["ifswitch"] <- new_pick

sum(games$pick == games$prize) / num_games
sum(games$ifswitch == games$prize) / num_games
```