# Aufgabe 2

**Exercise 2** *Monty Hall Problem* **0 p.**

In a game show, the prize is determined according to the following method: The contestants see three numbered doors in front of them. Behind one of these doors is a car, behind each of the others a goat. The candidate does not know where the car is, but must choose one of the doors. After he has done so, the game master opens one of the other two doors, shows the candidate that there is a goat behind it and asks him if he wants to stay with his decision or change it.

**(a)** What should the candidate do?

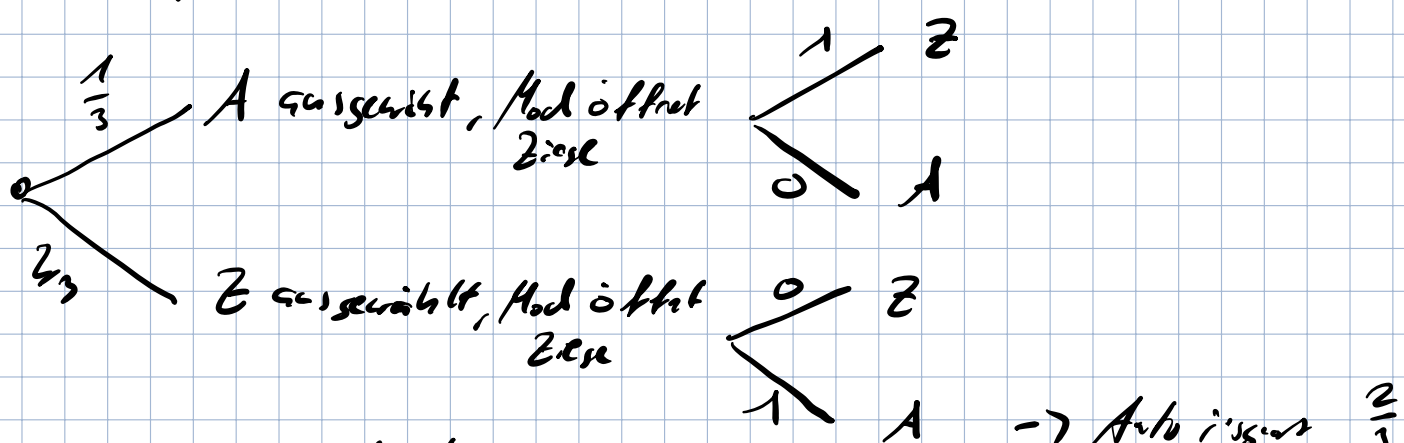
**(b)** What is the probability to win the car?

Please give reasons for all answers and sketch the corresponding probability tree.

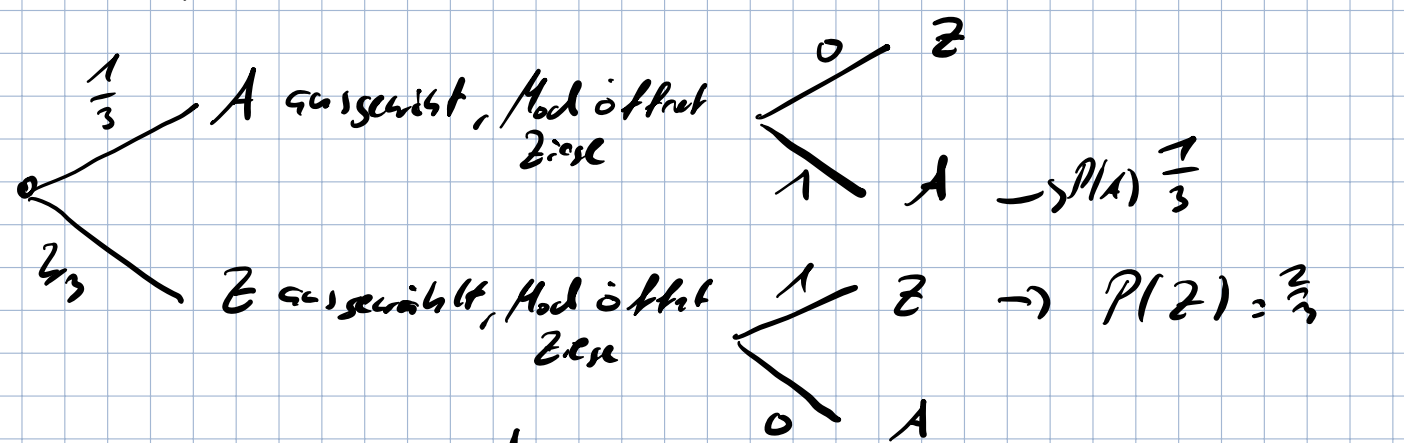
a)

| Tor 1 gewählt | Tor 2 | Tor 3 | Moderator öffnet ... | Ergebnis beim Wechseln | Ergebnis beim Behalten |
|---|---|---|---|---|---|
| Auto | Ziege | Ziege | Tor 2 oder Tor 3 | Ziege | **Auto** |
| Ziege | Auto | Ziege | Tor 3 | **Auto** | Ziege |
| Ziege | Ziege | Auto | Tor 2 | **Auto** | Ziege |
| **Tor 1** | **Tor 2 gewählt** | **Tor 3** | | | |
| Auto | Ziege | Ziege | Tor 3 | **Auto** | Ziege |
| Ziege | Auto | Ziege | Tor 1 oder Tor 3 | Ziege | **Auto** |
| Ziege | Ziege | Auto | Tor 1 | **Auto** | Ziege |
| **Tor 1** | **Tor 2** | **Tor 3 gewählt** | | | |
| Auto | Ziege | Ziege | Tor 2 | **Auto** | Ziege |
| Ziege | Auto | Ziege | Tor 1 | **Auto** | Ziege |
| Ziege | Ziege | Auto | Tor 1 oder Tor 2 | Ziege | **Auto** |

Spiele wechselt:




Spiele wechselt nicht




⇒ Wechseln Sinnvoll!