Naive Bayes - Tennis

Tennis-Example: Shall we play Tennis?

Data Set:

Day	Outlook	Temp.	Humidity	Wind	Decision
1	Sunny	Hot	High	Weak	No
2	Sunny	Hot	High	Strong	No
3	Overcast	Hot	High	Weak	Yes
4	Rain	Mild	High	Weak	Yes
5	Rain	Cool	Normal	Weak	Yes
6	Rain	Cool	Normal	Strong	No
7	Overcast	Cool	Normal	Strong	Yes
8	Sunny	Mild	High	Weak	No
9	Sunny	Cool	Normal	Weak	Yes
10	Rain	Mild	Normal	Weak	Yes
11	Sunny	Mild	Normal	Strong	Yes
12	Overcast	Mild	High	Strong	Yes
13	Overcast	Hot	Normal	Weak	Yes
14	Rain	Mild	High	Strong	No

Learning Phase: probability tables

Outlook	Yes	No
Sunny		
Overcast		
Rain		

Temp	Yes	No
Hot		
Mild		
Cool		

Humidity	Yes	No
High		
Normal		

Wind	Yes	No
Strong		
Weak		

P(Decision = Yes) = $\qquad$; P(Decision = No) =

Given the following data, which descion should we make?

1. X'_1 = (Outlook = Sunny)

2. X'_2 = (Outlook = sunny; Wind = weak)

3. X'_3 = (Outlook = sunny; Temperature = Hot; Humidity = High, Wind = Weak)

4. X'_4 = (Outlook = Sunny; Temperature = Cool; Humidity = High, Wind = Strong). **Follow up question for X'_4: How high is the probability for this decision?**