

## 3-9-5

1. 1. numerator(Iris setosa) =  
 $P(\text{Iris setosa}) P(\text{sepal length} | \text{Iris setosa}) P(\text{sepal width} | \text{Iris setosa}) P(\text{petal length} | \text{Iris setosa}) P(\text{petal width} | \text{Iris setosa})$
2. numerator(Iris versicolor) =  
 $P(\text{Iris versicolor}) P(\text{sepal length} | \text{Iris-versicolor}) P(\text{sepal width} | \text{Iris versicolor}) P(\text{petal length} | \text{Iris versicolor}) P(\text{petal width} | \text{Iris versicolor})$
3. numerator(Iris virginica) =  
 $P(\text{Iris virginica}) P(\text{sepal length} | \text{Iris virginica}) P(\text{sepal width} | \text{Iris virginica}) P(\text{petal length} | \text{Iris virginica}) P(\text{petal width} | \text{Iris virginica})$
2. 1.  $P(\text{Iris setosa}) = 50/150 = 1/3$   
2.  $P(\text{Iris versicolor}) = 50/150 = 1/3$   
3.  $P(\text{Iris virginica}) = 50/150 = 1/3$
3. 
$$p(\text{sepal\_length} | \text{iris\_setosa}) = \frac{1}{\sqrt{2\pi * .12}} e^{-\frac{(5.9-5)^2}{2*.12}} = .04$$
4. 4 features \* 3 classes = 12
5. Iris setosa because it is the highest probability