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**Graphical user interface, text, application

Description automatically generated**

1. **Give the formula for the posterior numerator for each variety**

**Posterior numerator(iris-setosa) = P (iris-setosa) \* P (sepal-length| iris-setosa) \* P (sepal-width| iris-setosa) \* P (petal-length| iris-setosa) \* P (petal-width| iris-setosa)**

**Posterior numerator(iris-versicolor) = P (iris-versicolor) \* P (sepal-length| iris-versicolor) \* P (sepal-width| iris- versicolor) \* P (petal-length| iris-s versicolor) \* P (petal-width| iris-versicolor)**

**Posterior numerator(iris-virginica) = P (iris- virginica) \* P (sepal-length| iris-virginica) \* P (sepal-width| iris- virginica) \* P (petal-length| iris- virginica) \* P (petal-width| iris- virginica)**

1. **Calculate P for each variety**

**P(iris-setosa) = 50 / 149 ~= 0.3356**

**P(iris-versicolor) = 50 /149 ~= 0.3356**

**P(iris-virginica) = 49 / 149 ~= 0.3289**

1. **Give the formula for P (sepal-length | iris-setosa) if the mean value and variance of sepal length for iris-setosa is 5 and 0.12. Substitute the values for x, u, and variance into the formula**

**P (sepal-length | iris-setosa) =**

1. **How many conditional probabilities will the Naïve Bayesian Classifier need to calculate to classify the test samples?**

**3(varieties) \* 4(features) = 12 conditional probabilities**

1. **If posterior numerator(iris-setosa) = 0.005, posterior numerator(iris-versicolor) = 0.002 and posterior numerator(iris-virginica) = 0.003, which variety did the Naïve Bayesian Classifier predict the test sample to be.**

**0.005 > 0.003 > 0.002, so we conclude that the variety of test sample is iris-setosa(0.005).**