
Probability Theory: Activity 19

Name: _____

Let X follow a uniform distribution on the interval $(5, 13)$.

1. What is the mean and variance of X ?
2. What is the probability that X is between 8 and 9.5?
3. We observe 36 independent random variables which all follow a uniform distribution on the interval $(5,13)$. What distribution does the sample mean follow? What is its mean and variance?
4. What is the probability that the sample mean is between 8 and 9.5?
5. Why are the answers to 2 and 4 different? Which is larger? Why?