

LAST NAME (Print): _____ FIRST: _____

Statistics 111 **Quiz 9**

1. Suppose $f(x, y) = 24x$ for all (x, y) such that $0 \leq x \leq 1$, $0 \leq y \leq 1$, and $2x \leq y$.

_____ What is the probability that both X and Y are between 0 and $1/2$?

_____ What is the value of μ_x ?

_____ What is the expected value of $1/x$?

_____ What is the expected value of Y when $x = 0.25$?

2. Write the Central Limit Theorem for sums. Use S to denote the random sum, and let n be the number of terms, each of which has mean μ and variance σ^2 .

3. _____ Make 50 draws, X_1, \dots, X_n from a binomial distribution with $n = 8$ and $p = 0.4$. What is the approximate probability that $\bar{X} \leq 3.3$?

3. List all, and only, the true statements. _____

- A. The standard error is the standard deviation of an estimate of a parameter.
- B. The Law of Averages is more specific than the Central Limit Theorem.
- C. Alan Turing worked on the Central Limit Theorem.
- D. If every person in the population is equally likely to be chosen, one has a simple random sample.
- E. Nonresponse bias occurs when people refuse to answer a survey.
- F. The FPCF is used when sampling without replacement.
- G. Response bias occurs when people who respond are different from those who do not.