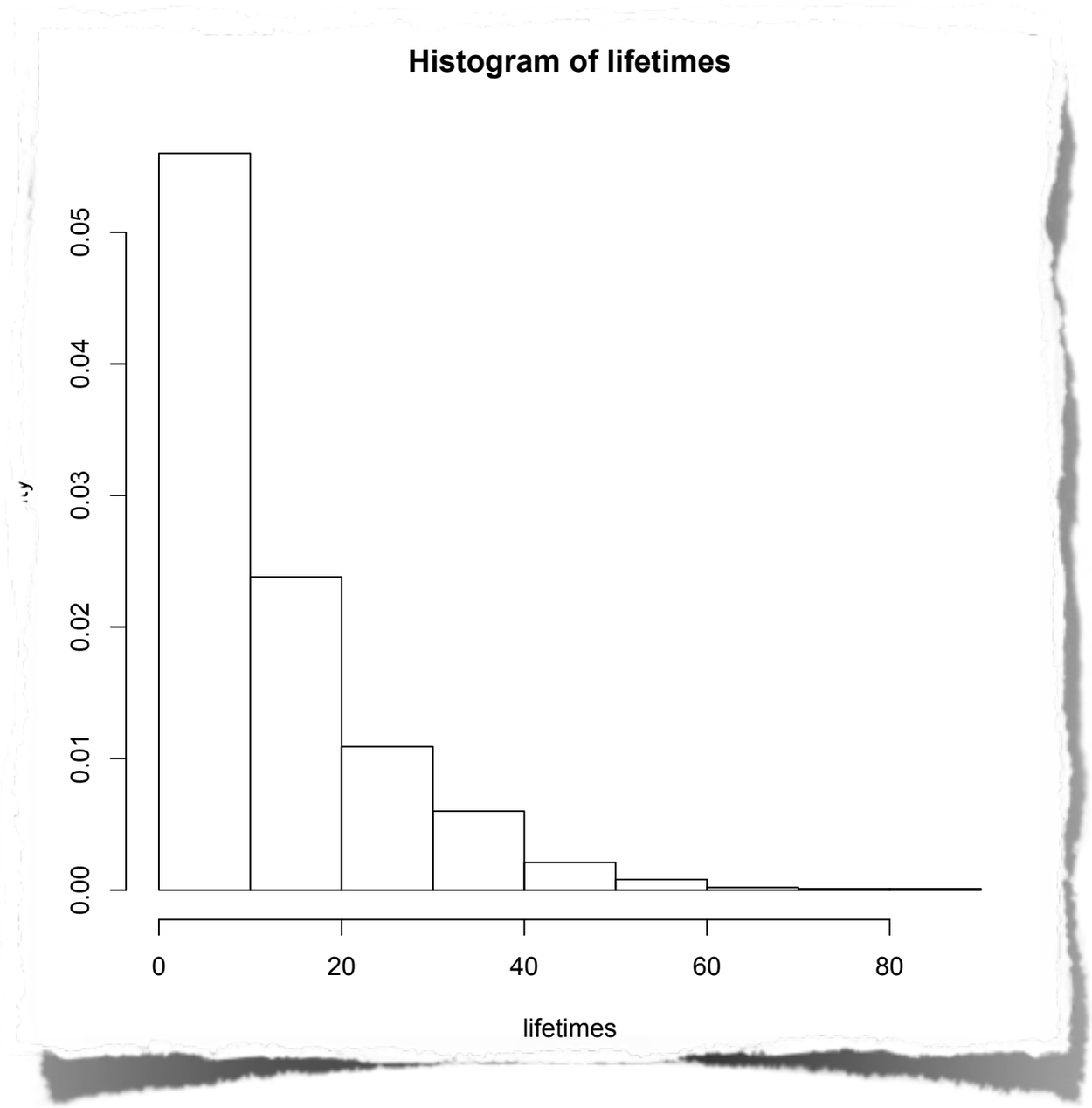
Review Problems:

In 500 rolls of a die, what is the chance of observing at least 98 outcomes of 2 spots?

In a population with 51% women, what is the chance that in a sample of 1000 there are fewer than 50% women?

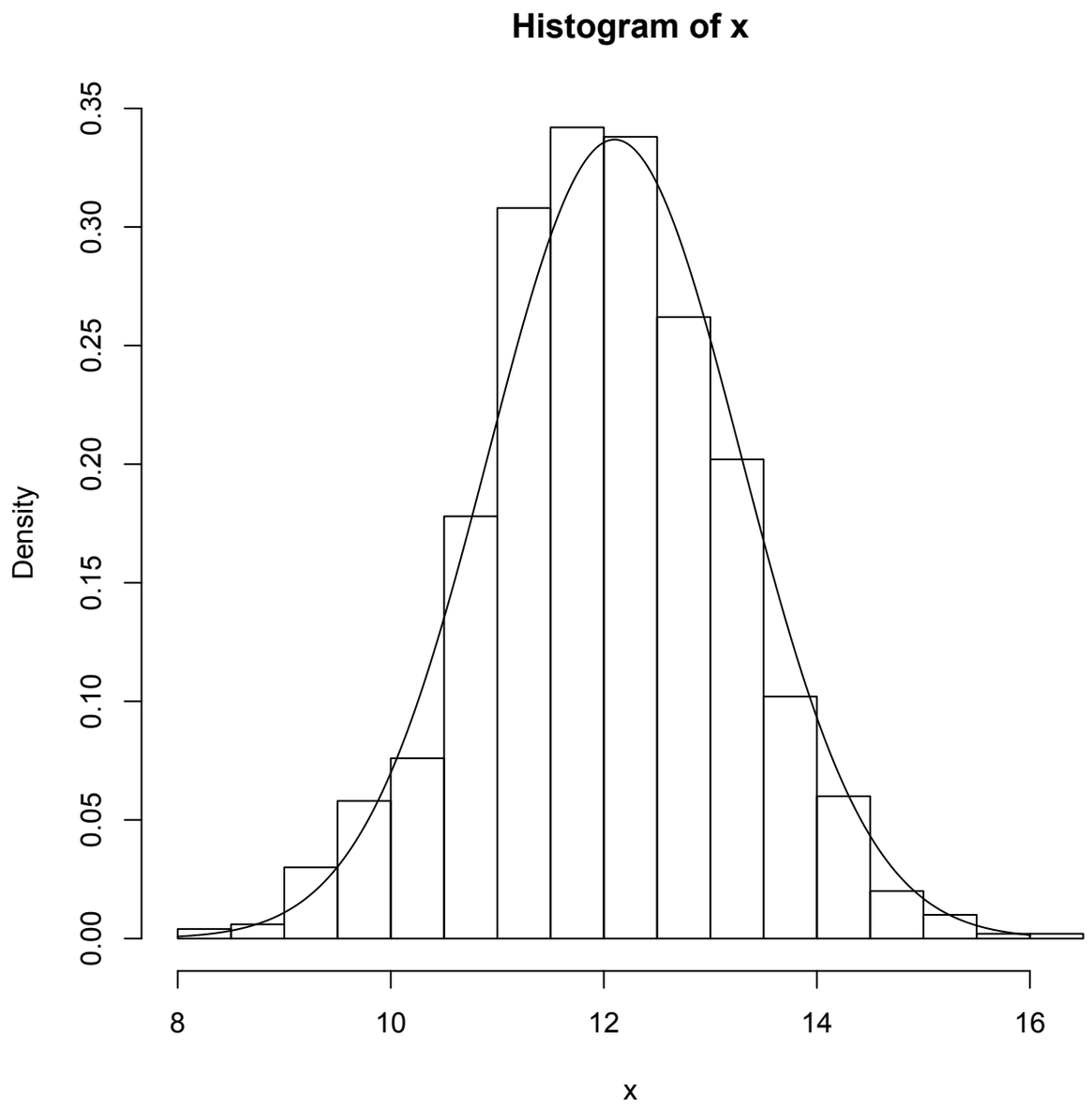
Population Distribution



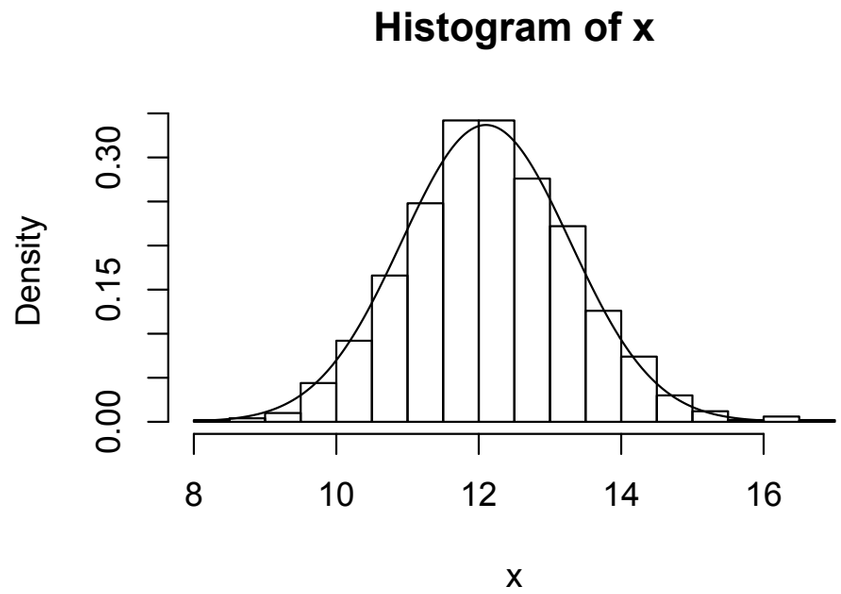
$\mu = 12.10$ and $\sigma = 11.84$

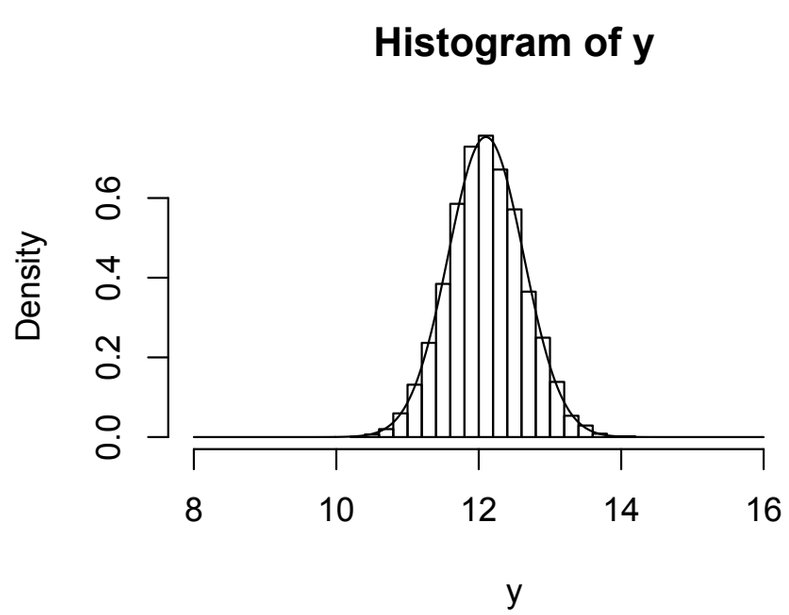
Sampling distribution of $\bar{x}$

$$n = 100$$

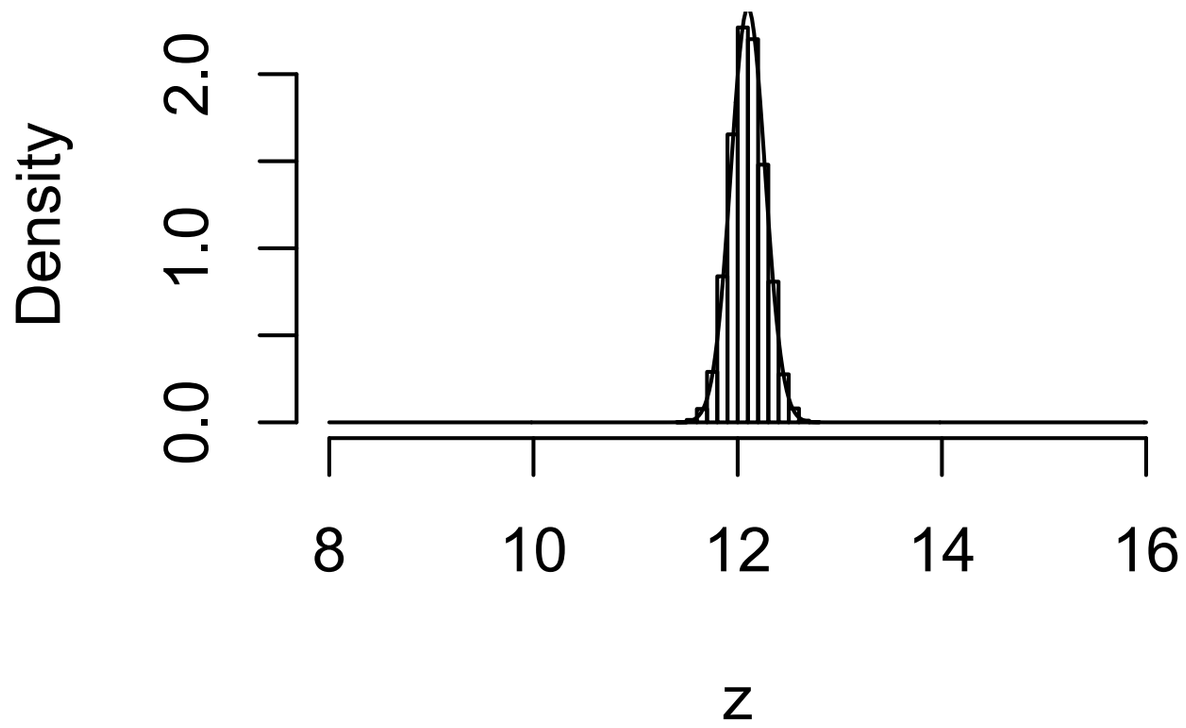


Sampling distribution of $\bar{x}$ for $n = 100$ and $n = 500$.





Sampling distribution of $\bar{x}$ for $n = 5000$.



You play 100 games of Roulette, always betting \$1 on "red". What is the chance that your net winnings are positive?

A population of men has a mean height of $\mu = 72$ inches with a standard deviation of $\sigma = 5$ inches. A sample of size 25 is taken. What is the chance that $\bar{x}$ is less than 71 or larger than 73?

Suppose a single coin is supposed to contain 1 gm of a precious metal. The standard deviation for the amount of metal in a single coin is 0.1 gm. You collect 50 coins, weight them, and find that the total weight is 0.96 gm. Should you be surprised?

A population of trees has an average diameter of μ meters, with a standard deviation of 0.5 meters. Who big a sample is needed so that the chance that $\bar{x}$ differs from μ be more than 0.01 meters is not more than 0.05?