Math 171.02 Spring 2004
Central Limit Theorem
March 1, 2004

Example. A large population of seeds of the princess bean *Phaseolus vulgaris* is to be sampled. The weights of the seeds in the population are known to have mean $\mu = 500$ mg and standard deviation $\sigma = 120$ mg. Suppose that a random sample of 100 seeds is to be weighed. Let $\overline{X}$ be the mean weight of the 100 seeds.

(a) What is the approximate distribution of $\overline{X}$?

(b) What is the probability that $\overline{X}$ will be greater than 520 mg?

(c) What is the weight w such that the probability that $\overline{X}$ is greater than w is only 0.01?