There are two problems from the book, one problem from our Classwork problems, and one additional problem called A. If you want more practice, then do more problems from the book, or see me.

Exercise 10.15 (about tomatoes)

Exercise 10.16 (about a cafeteria; you may skip the R part, although it's good practice too)

Classwork problem 52 (about roulette)

Problem A has three parts. An experimental physicist is trying to measure Titus's constant, which (according to theory) is a positive number that controls the rate at which one kind of particle decays into another kind. She has run her experiment many times, with varying results. In fact, 2.5% of her results are negative numbers, which don't make sense at all. But experiments are always a bit messy, right? The apparatus has some inherent "noise", which causes its results to deviate from the true answer. Based on how the apparatus is designed, she believes that the noise is normally distributed with mean 0 and variance $4 \cdot 10^{-6}$.

A.A. Assuming that her belief about the noise is correct, what's the true value of Titus's constant?

And why does the physicist assume the noise to be normal? Because that's pretty common in science. And why is it common? Because experimental noise is often the result of a bunch of tiny noises, which add together to produce the overall noise.

A.B. Why does that story suggest that the overall noise is normal? Under what assumptions on the tiny noises?

A.C. Assume that n tiny noises are involved. Impose the assumptions that you stated in part B of this problem. Then what are the expectation and variance of the tiny noises?