1. **Estimating nonzero error.** In class, we saw that by surveying just 20 members of any size population, we could get \( \approx 89\% \) confidence that a claim was true of at least 90% of the population. But, this calculation relied on the absence of any counterexamples to the claim among the 20 surveyed; indeed, if the claim were actually true of, say, 95% of the population, then we are somewhat likely to find such a counterexample within a sample of size 20, and this calculation would do us no good. In such a case, we can instead use Chernoff/Hoeffding bounds (Kearns & Vazirani, Theorem 9.2), but this comes at a price. Use the additive form of the bound to determine a sample size such that by counting the fraction of counterexamples to the claim, with 89% confidence, we obtain an estimate of the true fraction of the population for which the claim holds to within an additive 10%.

2. **Guessing the size parameter.** Exercise 1.5 in Kearns & Vazirani. (For this problem, it’s helpful to assume the following model of a learning algorithm: instead of the examples being given up-front, the algorithm has an “example oracle,” a subroutine that returns a new labeled example that is independently drawn from the underlying distribution \( D \).)