# Solution to Homework 3

**Question.** How many questions do we need to ask a user to get his/her subjective probability with accuracy 10%?

**Answer.** Before we get any answers, all we know is that the probability is somewhere on the interval $[0, 1]$. The width of this interval is 1. After each answer, the width decreases by half. So, after $k$ questions, the width becomes $2^{-k}$. The smallest $k$ for which $2^{-k}$ is smaller than 0.1 is $k = 4$ – then $2^{-k} = 1/16 < 1/10$. So, we need to ask 4 questions.