46. For a specific professor in the Physics department, 30% of students withdraw from his elementary physics course after the first test. The day of the first exam, there are 50 students in his class. You can assume that students decide whether or not to withdraw from the course independently of one another.

   (a) What is the random variable, and what is the distribution? Specifically, what is the name of the distribution and the values of the distribution's parameter?

   (b) What is the probability that 10 students withdraw after the first exam?

   (c) How many students does he expect will withdraw after the first exam?

   (d) What is the probability that at least 40 students remain in the class after the first exam?