

A small hotel has 10 rooms. From past experience they know that 20% of the time people who make reservations do not show up, so as a result they overbook by accepting 12 reservations for a given night. Let X be the number of “no shows” that night (people who don’t show up). What is the expected number of “no shows” that night? What is the standard deviation of that number? What is the probability that the hotel will end up with more customers than they can handle (that is, more people with reservations than available rooms will arrive)? What assumptions are you making here? Do they make sense?