Problem for Week 8

Comments/solutions on the Blackboard discussion board please!

A passenger aeroplane has 100 seats, numbered 1 to 100, and 100 passengers are about to board. Each passenger has an assigned seat. Passengers board the aircraft one at a time. The first person to board the aircraft sits down in a random seat instead of going to his/her own seat. After that, everybody who boards the aircraft will sit in his/her own seat if it is available, and will sit in a randomly chosen available seat if his/her own seat is already occupied. (For example the second person to get on will sit in his/her assigned seat unless that is the one that happened to be chosen by Person no. 1).

What is the probability that the 100th person to board the aircraft will sit in the seat originally assigned to him/her?