

Hints for Problem 3.4 in Chapter 3

First, you need to know the probability that the server (hair stylist or whatever) finishes serving the customer after n periods, given that service has already lasted $n - 1$ periods. That is, you want $Pr\{Z = n|Z > n - 1\}$. To get it, you may use this formula for the sum of a geometric series: If $0 < a < 1$, then

$$\sum_{k=j}^{\infty} a^k = \frac{a^j}{1 - a}$$