1. Following equation holds for open networks (mean value method). Solve the equation by multiplying the both sides with $E[S_r^r]$ and taking a sum over $r$.

$$E[T_r^r] = E[S_r^r] + \lambda \sum_{r'=1}^{R} e_{rr'}E[T_{r'}^{r'}]E[S_{r'}^{r'}].$$

2. There are two customers in a closed network (see figure below). What is the average return time for a customer leaving a queue 4?

![Diagram of a closed network with queues and return times](image-url)