(1) Problem 5.1 Ross.
(2) Problem 5.5 Ross.
(3) Problem 5.11 Ross.
(4) Problem 5.13 Ross.
(5) Problem 5.14 Ross.
(6) Problem 5.20 Ross.
(7) Problem 5.22 Ross. A $M/M/s$ system is a queuing system with exponential arrival and services times and $s$ servers.
(8) Let $X(t)$ be a continuous time Markov chain with an infinite state space and assume that the transition rates $\{q_{ij}\}$ are such that for each $i$, only a finite number of the $\{q_{ij}\}$ are different from zero. Find a differential equation relating the derivative of the probability generating function $P(X(t) = j | X(0) = i)$ with itself. Use this expression to find the probability generating function $G_{X(t)}(z)$ for the birth and death process with immigration discussed in class.
(9) Problem 5.28 Ross