Stat 150, Fall 2018, HW #5

Due Thurs Oct 25 at the start of class 9:30 AM in Evans 10.
Late assignments will not be accepted.

1. Pinsky and Karlin [PK], Problems (*not* exercises):

   6.1.1

   6.1.3

   6.1.7. This problem verifies the general formula for $\mathbb{P}(X_t = n | X_0 = 0)$ for a pure birth process ($q(i, i+1) = \lambda_i$, where all λ_i are distinct, and all other $q(i, j) = 0$, $i \neq j$) given by equation (6.8) in the case $n = 2$.

   6.2.1

   6.3.1

2. Durrett [D], Exercises:

   Before doing the following exercises, look at Lemma 4.3 (π is a stationary distribution if and only if $\pi Q = 0$) and Theorem 4.5 (detailed balance for continuous Markov chains). Read their proofs.

   4.3

   4.8

   4.10

   4.22

   4.24