MAP4102, Spring 2014, Homework 3   *due Wed, February 6*

These problems are due at the beginning of the class next Wednesday.

Students enrolled in MAP4102 can choose to do just one of the ◇ problems. Students enrolled in MAT6932 should do all problems.

1. Durrett, 1.14 (a), (b) and (c).

2. In class, we considered the following renewal process. Let $\{X_n\}_{n\geq 1}$ be a random walk the values $\{0, 1, 2, \ldots, 14\}$ with transition probabilities $p(0, 14) = 1/2$, $p(0, 4)$, $p(i, i-1) = 1$ for all $i \in \{1, \ldots, 14\}$ and zero probability for all other transitions.

   Use the definition of a stationary distribution – namely, a unit vector π satisfying $\pi P = \pi$ where P is the transition matrix of the Markov chain – to compute the stationary distribution of this chain.

3. ◇ Durrett 1.41

4. ◇ Durrett 1.47