

Question 2 Markov Processes

Find the n -step transition probabilities $P^n(x, y)$ for the chain having transition matrix

$$\begin{pmatrix} 0 & 1/2 & 1/2 \\ 1/3 & 1/4 & 5/12 \\ 2/3 & 1/4 & 1/12 \end{pmatrix}$$

Compare $\lim_{n \rightarrow \infty} P^n(x, y)$ with the stationary distribution.