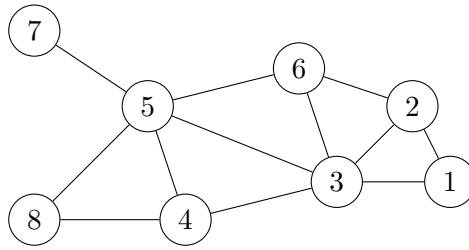1. Consider the Markov chain obtained as the random walk on the (undirected) graph below. That is, when at a vertex, the walker picks uniformly from all available edges. Determine the stationary distribution.

2. Consider the points $1, 2, 3, 4$ to be marked on a straight line. Let X_n be a Markov chain that moves to the right with probability $2/3$ and to the left with probability $1/3$, but subject this time to the rule that if X_n tries to go to the left from 1 or to the right from 4 it stays put. Show that this chain has detailed balance, and determine the stationary distribution.