The following Markov chain with transitions every hour represents a newborn baby:

1. How many transient states are in this Markov chain (1 pt)?

2. How many recurrent states are in this Markov chain (1 pt)?

3. Find the steady-state probabilities, $\pi_1, \pi_2, \pi_3, \pi_4$, for this Markov chain (3 pts):

4. Given that the baby is in the eating state, how long, on average, do we expect it to take to reach the sleeping state for the first time (3 pts)?

5. Given that the baby is in the birth state, what is the absorption probability of ending up in the awake/eating/sleeping class (1 pt)?