Problem 6.1

Q: mean sojourn time DTMC example 5.2 & 5.3

Solution Example 5.2

$$E(T_i) = \frac{1}{1-p_{ii}}$$

$$E(T_0) = \frac{1}{1-p_{00}} = \frac{1}{1-q_0}$$

$$E(T_i) = \frac{1}{1-p_{ii}} = \frac{1}{1-0} = 1 \quad (i = 2, 3 \cdots m)$$

Example 5.3

$$E(T_0) = \frac{1}{1-p_{00}} = \frac{1}{1-(1-\alpha)^2} = \frac{1}{1-(1-2\alpha+\alpha^2)}$$

$$= \frac{1}{2\alpha-\alpha^2}$$

$$E(T_1) = \frac{1}{1-(1-\alpha)} = \frac{1}{\alpha}$$

$$E(T_2) = \frac{1}{1-1} = \infty$$