

Problem 16

$$4 \rightarrow R_1: X \quad 4 \rightarrow R_2: 1-X \quad \dots \textcircled{1}$$

$$3 \rightarrow R_1: Y \quad 3 \rightarrow R_2: 1-Y \quad \dots \textcircled{2}$$

$$\textcircled{1} \quad X = \frac{1}{4} + \frac{Y}{4} \quad \textcircled{2} \quad Y = \frac{1}{4} + \frac{X}{4} \quad \rightarrow Y = 0.6 \quad X = 0.4$$

Problem 17.

$$t_i = E[T | X_0 = i]$$

$$t_i = 1 + \sum_k t_k p_{ik} \quad \text{for } i=3, 4$$

$$t_3 = 1 + \frac{1}{4} t_4 \quad t_4 = 1 + \frac{1}{4} t_3$$

$$t_3 = \frac{4}{3} \quad t_4 = \frac{4}{3} \quad \therefore \frac{4}{3} \text{ steps}$$