

38.

设每个路口遇到红灯的概率为 p 。

(a)

$$\begin{aligned}P_X(x) &= C_4^x p^x (1-p)^{4-x} \\E[X] &= 4p \\var(X) &= \sum_{i=0}^4 \var(X_i) = 4p(1-p)\end{aligned}$$

(b)

$$\var(2X) = 16p(1-p)$$

39.

由独立性，有：

$$\begin{aligned}E[X] &= \sum_{i=1}^{10} E[X_i] = 35 \\var(X) &= \sum_{i=1}^{10} \var(X_i) = \frac{175}{6}\end{aligned}$$

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