5.1

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1. $0,3^8 = 0,00006561$

2. $0,7 \cdot 0,3^7 = 0,00015309$

3. $1 - 0,3^8 = 0,99993439$

5.2

$$V(X) = E[X^2] - E[X]^2 = \frac{2}{P^2} - \frac{1}{P} - \frac{1}{P^2} = -\frac{1}{P} + \frac{1}{P^2} = \frac{1-P}{P^2}$$

5.3

$0,4^2 \cdot 0,6 = 0,096$

5.4

$$V(X) = E[x^2] - E[x] = \sum n^2 \frac{\lambda^n}{n!} e^{-\lambda} - \lambda^2 =$$

$$\sum n(n-1) \frac{\lambda^n}{n!} e^{-\lambda} + \sum n \frac{\lambda^n}{n!} e^{-\lambda} - \lambda^2 =$$

$\boxed{n^2 \Rightarrow n(n-1) + n}$

$$= \lambda^2 + \lambda - \lambda^2 = \lambda$$