

**1****1.1**

$\sim Bi(n, p)$

**1.2**

Je třeba napočítat ručně (tabulka).

**1.3**

Pro  $n = 2$ :

$$P(X_1 + X_2 = k) = \sum_0^{\infty} P(X_1 + X_2 = k | X_2 = l) \cdot P(X_2 = l) = \sum_0^k P(X_1 = k - l) \cdot P(X_2 = l) = \sum_0^k \frac{\lambda^{k-l} e^{-\lambda}}{(k-l)!} \cdot \frac{\lambda^l e^{-\lambda}}{l!} =$$

$$\frac{e^{-2\lambda} \lambda^k}{k!} \sum_0^k \frac{k!}{(k-l)! l!} = \frac{e^{-2\lambda} \lambda^k}{k!} 2^k = \frac{e^{-2\lambda} (2\lambda)^k}{k!} \rightarrow \sim Po(2\lambda)$$

Obecně  $n\lambda$

**2**

$$P(\sum_0^{100} X_i > 60) = P\left(\frac{\sum_0^{100} X_i - 50}{\sqrt{100 \cdot \frac{1}{2} \cdot (1 - \frac{1}{2})}} > \frac{60 - 50}{5}\right) = 1 - P\left(\frac{\sum_0^{100} X_i - 50}{\sqrt{100 \cdot \frac{1}{2} \cdot (1 - \frac{1}{2})}} < 2\right) \approx 1 - \Phi(2)$$

**3****3.1**

Prostě CLV na vše