$$X_1, \dots, X_n \overset{iid}{\sim} \text{Poiss}(\lambda)$$

$$\mathbb{E}[X_i] = var[X_i] = \lambda$$

$$\overline{X} \underset{n \to \infty}{\overset{\text{ц.п.т}}{\sim}} N\left(\mathbb{E}[X_i], \frac{var[X_i]}{n}\right) = N\left(\lambda, \frac{\lambda}{n}\right)$$

$$\mathbb{P}\left(\lambda \in \left\{\hat{\lambda} \pm z_{1-\frac{\alpha}{2}} \cdot \sqrt{\frac{\hat{\lambda}}{n}}\right\}\right) = 1-\alpha$$

$$X_1, \dots, X_{n_x} \overset{iid}{\sim} \text{Poiss}(\lambda_x)$$

$$Y_1, \dots, Y_{n_y} \overset{iid}{\sim} \text{Poiss}(\lambda_y)$$

$$\overline{X} - \overline{Y} \sim N\left(\lambda_x - \lambda_y, \frac{\lambda_x}{n_x} + \frac{\lambda_y}{n_y}\right)$$

$$\mathbb{P}\left(\lambda_x - \lambda_y \in \left\{\hat{\lambda}_x - \hat{\lambda}_y \pm z_{1-\frac{\alpha}{2}} \cdot \sqrt{\frac{\lambda_x}{n_x} + \frac{\lambda_y}{n_y}}\right\}\right) = 1-\alpha$$

$$[6; 7.5]$$

$$[-2; 4] \to [-2; 0] \quad \lambda_x < \lambda_y$$

$$[-2; 4] \to [0; 4] \quad \lambda_x > \lambda_y$$

$$\mathbb{P}(X=x) = \frac{\lambda^{x} \cdot e^{-\lambda}}{x!}$$

$$\left[\mathbb{P}(X=x)\right]'_{\lambda} = \frac{\lambda^{x-1} e^{-\lambda} \cdot (x-\lambda)}{x!}$$

$$\hat{\lambda} = \bar{X} \sim N\left(\lambda, \frac{\lambda}{n}\right)$$

$$\mathbb{P}(X=x) = \frac{\hat{\lambda}^{x} \cdot e^{-\hat{\lambda}}}{x!}$$

$$\mathbb{P}(X=x) \sim N\left(\frac{\lambda^{x} \cdot e^{-\lambda}}{x!}, \frac{\hat{\lambda}}{n}\left(\frac{\hat{\lambda}^{x-1} e^{-\lambda} \cdot (x-\hat{\lambda})}{x!}\right)^{2}\right]$$