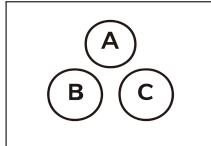


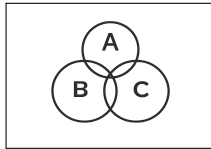
# 21

## Discrete Distribution Poisson Variable

# F

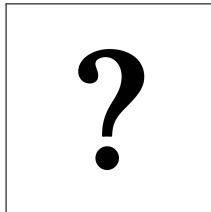


$$\lambda = 1$$



$$P(X = k) = e^{-\lambda} \frac{\lambda^k}{k!}$$

$$P(X = 0) = e^{-1} \frac{1^0}{0!} = e^{-1} \approx \boxed{0.37}$$



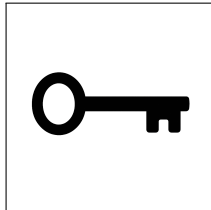
$$\lambda = 4$$

$$P(X \geq 3) = ?$$

## 21

Discrete Distribution  
Poisson Variable

## F



$$\lambda = 4$$

$$P(X \geq 3) = 1 - P(X \leq 2)$$

$$P(X \geq 3) = 1 - \sum_{k=0}^2 e^{-4} \frac{4^k}{k!}$$

$$P(X \geq 3) = 1 - e^{-4} \left( 1 + 4 + \frac{4^2}{2!} \right)$$

$$P(X \geq 3) = 1 - 13 e^{-4}$$

$$P(X \geq 3) \approx 1 - 13 \times 0.018315 \approx \boxed{0.7619}$$