

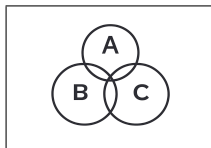
# E

## Poisson Random Variable

# E

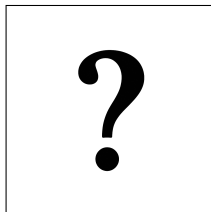


$$\lambda = 1$$



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

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



$$\lambda = 2$$

$$t = 1$$

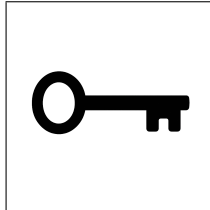
$$\Lambda = 2$$

$$P(X \leq 4) = ?$$

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## Poisson Random Variable

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$$\lambda = 2$$

$$t = 1$$

$$\Lambda = 2$$

$$P(X \leq 4) = ?$$

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

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

$$P(X \leq 4) = e^{-2} (1 + 2 + 2 + 1.3333 + 0.6667)$$

$$P(X \leq 4) = 7 e^{-2}$$

$$P(X \leq 4) \approx 7 \times 0.1353353$$

$$P(X \leq 4) \approx \boxed{0.9473}$$