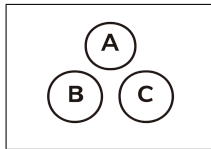
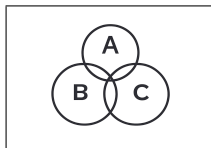


# B Poisson Random Variable B

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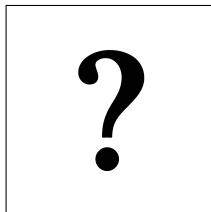


$$\lambda = 1$$



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

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



$$\lambda = 2$$

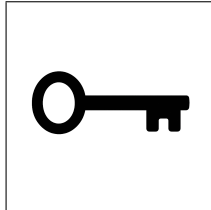
$$t = 5$$

$$\Lambda = \lambda t = 2 \times 5 = 10$$

$$k = 10$$

# B Poisson Random Variable B

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$$\begin{aligned}\lambda &= 2 \\ t &= 5 \\ \Lambda &= \lambda t = 2 \times 5 = 10 \\ k &= 10\end{aligned}$$

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$$P(N = 10) = e^{-\Lambda} \frac{\Lambda^{10}}{10!} = e^{-10} \frac{10^{10}}{10!}$$

$$10! = 3,628,800$$

$$\frac{10^{10}}{10!} = \frac{10\,000\,000\,000}{3\,628\,800} \approx 2,755.73$$

$$e^{-10} \approx 4.53999 \times 10^{-5}$$

$$P(N = 10) \approx 2,755.73 \times 4.53999 \times 10^{-5} \approx \boxed{0.1251}$$