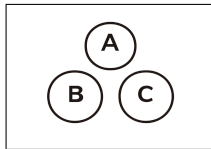
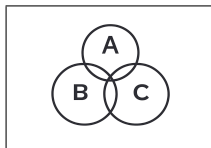


J

Poisson Random Variable

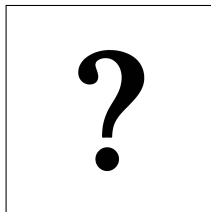
J

$$\lambda = 1$$



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

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

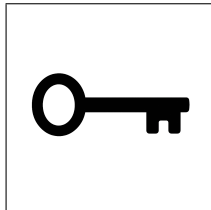


$$\lambda = 2.5$$

$$P(X \leq 1) = ?$$



Poisson Random Variable



$$\lambda = 2.5$$
$$P(X \leq 1) = ?$$

$$P(X \leq 1) = P(X = 0) + P(X = 1)$$

$$P(X \leq 1) = e^{-2.5} \frac{2.5^0}{0!} + e^{-2.5} \frac{2.5^1}{1!}$$

$$P(X \leq 1) = e^{-2.5} (1 + 2.5)$$

$$P(X \leq 1) = 3.5 e^{-2.5}$$

$$e^{-2.5} \approx 0.082085$$

$$3.5 \times 0.082085 \approx 0.2873$$

$$P(X \leq 1) \approx \boxed{0.2873}$$