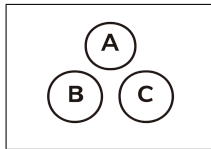
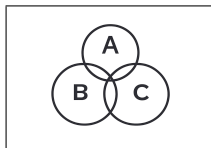


# S Poisson Random Variable S

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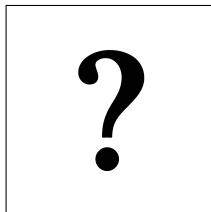


$$\lambda = 1$$



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

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



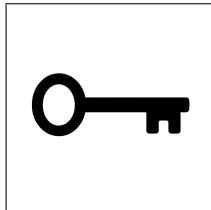
$$n = 200$$

$$p = 0.03$$

$$P(X \leq 6) = ?$$

# S Poisson Random Variable S

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$$n = 200$$
$$p = 0.03$$

---

$$\lambda = np = 6$$

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$$P(X \leq 6) \approx \sum_{k=0}^6 e^{-6} \frac{6^k}{k!}$$

$$P(X \leq 6) \approx 0.00247875 \left( 1 + 6 + \frac{6^2}{2!} + \frac{6^3}{3!} + \frac{6^4}{4!} + \frac{6^5}{5!} + \frac{6^6}{6!} \right)$$

$$P(X \leq 6) \approx 0.00247875 (1 + 6 + 18 + 36 + 54 + 64.8 + 64.8)$$

$$P(X \leq 6) \approx 0.6066$$