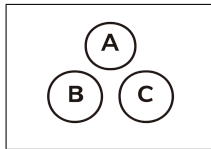
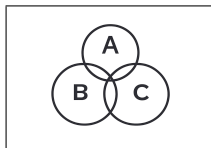


# D Poisson Random Variable D

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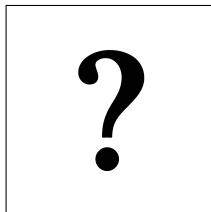


$$\lambda = 1$$



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

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

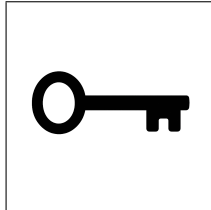


$$\lambda = 3$$

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

# D Poisson Random Variable D

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

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

$$P(X = 0) = e^{-3}$$

$$P(X = 1) = 3e^{-3}$$

$$P(X = 2) = \frac{3^2}{2!} e^{-3} = 4.5 e^{-3}$$

$$\sum_{k=0}^2 P(X = k) = (1 + 3 + 4.5) e^{-3} = 8.5 e^{-3}$$

$$P(X \geq 3) = 1 - 8.5 e^{-3} \approx 1 - 8.5 \times 0.0497871 \approx \boxed{0.5768}$$