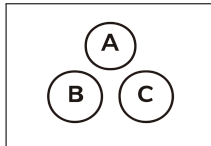


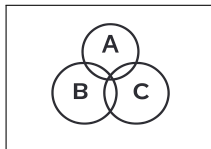
21

Discrete Distribution Poisson Variable

L

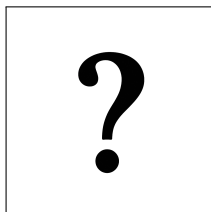


$$\lambda = 1$$



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

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



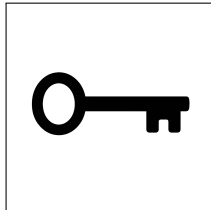
$$\lambda = 3$$

$$X \sim \text{Pois}(3)$$

21

Discrete Distribution
Poisson Variable

L



$$\lambda = 3$$
$$X \sim \text{Pois}(3)$$

$$P(X \geq 2) = 1 - [P(X = 0) + P(X = 1)]$$

$$P(X \geq 2) = 1 - \left(e^{-3} \frac{3^0}{0!} + e^{-3} \frac{3^1}{1!} \right)$$

$$P(X \geq 2) = 1 - e^{-3}(1 + 3)$$

$$P(X \geq 2) = 1 - 0.0497871(1 + 3)$$

$$P(X \geq 2) \approx 1 - 4 \times 0.0497871$$

$$P(X \geq 2) \approx 1 - 0.19915$$

$$P(X \geq 2) \approx \boxed{0.80}$$