

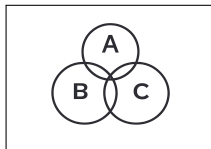
21

Discrete Distribution Poisson Variable

M

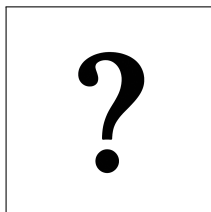


$$\lambda = 1$$



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

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



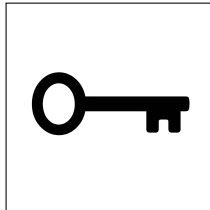
$$n = 200$$

$$p = 0.02$$

21

Discrete Distribution
Poisson Variable

M



$$n = 200$$
$$p = 0.02$$

$$\lambda = np = 200 \cdot 0.02 = 4$$

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

$$P(X \geq 2) = 1 - \left(e^{-4} \frac{4^0}{0!} + e^{-4} \frac{4^1}{1!} \right)$$

$$P(X \geq 2) = 1 - e^{-4}(1 + 4)$$

$$P(X \geq 2) \approx 1 - 5 \cdot 0.018315 = 1 - 0.091575$$

$$P(X \geq 2) \approx \boxed{0.91}$$