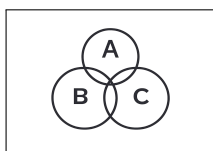
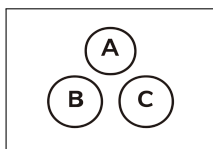


# 18

## Discrete Distribution Uniform Variable

# E

$$X = \{2, 4, 6, 8\}$$



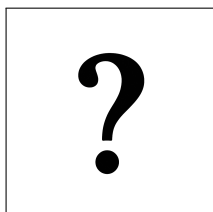
$$P(X = x) = \frac{1}{4}$$

$$E(X) = \sum_x xP(X = x) = \frac{1}{4}(2 + 4 + 6 + 8) = \frac{20}{4} = 5$$

$$E(X^2) = \sum_x x^2P(X = x) = \frac{1}{4}(2^2 + 4^2 + 6^2 + 8^2) = \frac{1}{4}(4 + 16 + 36 + 64) = \frac{120}{4} = 30$$

$$\text{Var}(X) = E(X^2) - [E(X)]^2 = 30 - 25 = 5$$

$$E(3X - 1) = 3E(X) - 1 = 3(5) - 1 = 14$$



$$X = \{0, 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22\}$$

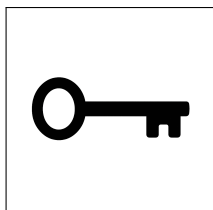
$$|X| = 12$$

$$P(X = 18) = ?$$

# 18

## Discrete Distribution Uniform Variable

# E



$$X = \{0, 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22\}$$

$$|X| = 12$$

$$P(X = 18) = \frac{1}{12} \approx 0.0833$$