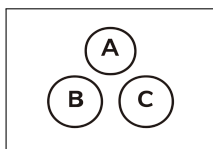
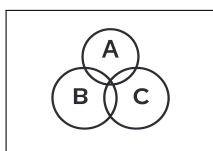


7

Discrete Distribution
Complementary Event

$$S = \{1, 2, 3, 4, 5, 6, 7, 8\}$$

$$A = \{1, 2\}$$



$$P(A) = |A|/|S| = 2/8 = 0.25$$

$$P(A^C) = 1 - P(A) = 0.75$$



$$P(A) = 0.60$$

$$P(H) = 0.30$$

$$P(A \cap H) = 0.20$$

$$P((A \cap H^c) \cup (A^c \cap H)) = ?$$

7

Discrete Distribution
Complementary Event

$$P(A) = 0.60$$

$$P(H) = 0.30$$

$$P(A \cap H) = 0.20$$

$$P((A \cap H^c) \cup (A^c \cap H)) = ?$$

$$P(A \cup H) = P(A) + P(H) - P(A \cap H)$$

$$P((A \cap H^c) \cup (A^c \cap H)) = P(A \cup H) - P(A \cap H)$$

$$P((A \cap H^c) \cup (A^c \cap H)) = P(A) + P(H) - P(A \cap H) - P(A \cap H)$$

$$P((A \cap H^c) \cup (A^c \cap H)) = P(A) + P(H) - 2P(A \cap H)$$

$$P((A \cap H^c) \cup (A^c \cap H)) = 0.60 + 0.30 - 2(0.20)$$

$$P((A \cap H^c) \cup (A^c \cap H)) = 0.90 - 0.40 = 0.50$$