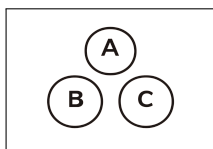


7

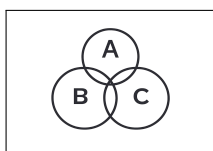
Discrete Distribution
Complementary Event

O



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

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



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

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



$$P(E^c) = 0.70$$

$$P(H^c) = 0.85$$

$$P(E^c \cap H^c) = 0.61$$

$$P(E \cap H) = ?$$

7

Discrete Distribution
Complementary Event

O



$$P(E^c) = 0.70$$

$$P(H^c) = 0.85$$

$$P(E^c \cap H^c) = 0.61$$

$$P(E \cap H) = ?$$

$$P(E \cup H)^c = P(E^c \cap H^c) = 0.61$$

$$P(E \cup H) = 1 - 0.61 = 0.39$$

$$P(E) = 1 - P(E^c) = 1 - 0.70 = 0.30$$

$$P(H) = 1 - P(H^c) = 1 - 0.85 = 0.15$$

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

$$0.39 = 0.30 + 0.15 - P(E \cap H)$$

$$0.39 = 0.45 - P(E \cap H)$$

$$P(E \cap H) = 0.45 - 0.39 = 0.06$$