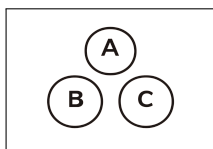


7

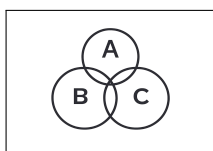
Discrete Distribution
Complementary Events

N



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

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



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

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



$$P(L) = 0.04$$

$$P(P) = 0.10$$

$$P(L \cap P^c) = 0.01$$

$$P(L^c \cap P^c) = ?$$



$$\begin{aligned}P(L) &= 0.04 \\P(P) &= 0.10 \\P(L \cap P^c) &= 0.01 \\P(L^c \cap P^c) &= ?\end{aligned}$$

$$P(L^c \cap P^c) = 1 - P(L \cup P)$$

$$\begin{aligned}P(L) &= P(L \cap P) + P(L \cap P^c) \\0.04 &= P(L \cap P) + 0.01 \\P(L \cap P) &= 0.03\end{aligned}$$

$$\begin{aligned}P(L \cup P) &= P(L) + P(P) - P(L \cap P) \\P(L \cup P) &= 0.04 + 0.10 - 0.03 = 0.11\end{aligned}$$

$$P(L^c \cap P^c) = 1 - P(L \cup P) = 1 - 0.11 = 0.89$$