

Einführung in die Wahrscheinlichkeitstheorie
Übungsserie 1

Aufgabe 2:

$$(a) \quad A \setminus (B \cup C) = A \cap (B \cup C)^C = A \cap B^C \cap C^C = (A \cap B^C) \cap (A \cap C^C) = \underline{\underline{(A \setminus B) \cap (A \setminus C)}}$$

$$(b) \quad A \cup \bigcap_{i=1}^k B_i = \left(A^C \cap \left(\bigcap_{i=1}^k B_i \right)^C \right)^C = \left(A^C \cap \left(\bigcup_{i=1}^k B_i^C \right) \right)^C = \left(\bigcup_{i=1}^k A^C \cap B_i^C \right)^C = \bigcap_{i=1}^k (A^C \cap B_i^C)^C \\ = \bigcap_{i=1}^k (A^C \cap B_i^C)^C = \underline{\underline{\bigcap_{i=1}^k (A \cup B_i)}}$$

Aufgabe 6:

$$B_1 = \bigcap_{j=1}^n A_j, \quad |B_1| = 1$$

$$B_2 = \bigcup_{j=1}^n A_j, \quad |B_2| = 2^n - 1$$

$$B_3 = \bigcup_{j=1}^n \left(A_j \cap \bigcap_{i=1}^n A_i^C \mid i \neq j \right), \quad |B_3| = n$$

$$B_4 = \bigcap_{j=1}^n A_j \cup \bigcap_{j=1}^n A_j^C, \quad |B_4| = 2$$