IHDCB331 - Algorithmique II
TP 1 - Exercices pratiques

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1 Notation Mathématique

Question 1

1. $I = \{1, 2, 3, 4\}$

2. $J = \{1, 2, 3\}$

3. $K = \{1, 2, 3, 4, 5\}$

4. $K = \{1, 76, 2, 5, -1\}$

Question 2

1. $A = \{4, 6, 7, 8\}$

2. $B = \{(0, 0), (0, 5), (0, 7), (1, 1), (1, 6), (2, 2), (8, 2), (9, 1), (9, 7)\}$

3. $C = \{0, 1, 2, 8, 9\}$

4. $D = \{(1, 2, 3), (2, 3, 76), (3, 76, 27), (76, 27, 1), (27, 1, 2), (1, 2, 1)\}$

Question 3

1. $\forall i : 0 \le i < n : a[i] = 0$

2. $\forall i, \forall j : 0 \le i, j < 0 : a[i] \ne a[j]$

3. $\forall i : 0 \le i < n : a[i] \bmod 2 = 0$

4. $\exists i : 0 \le i < n : a[i] = 0$

5. $\forall i : 0 \le i < n : a[i] \bmod 2 = 0 \Rightarrow a[i] < 10$

6. $\forall i : 0 \le i < n : a[i] \bmod 2 = 0 \Rightarrow i \bmod 2 = 0$

7. $\forall i, \forall j : 0 \le i < j < 0 : a[i] \le a[j]$

Question 4

1. $\forall i : \exists x : 0 \le i < n : x \le a[i]$

2. $\{a[i] \mid 0 \le i < n\} \subseteq \{b[j] \mid 0 \le j < m\}$

3. $\{a[i] \mid 0 \le i < n\} \cap \{b[j] \mid 0 \le j < m\} = \emptyset$

4. $\{a[i] \mid 0 \le i < n\} \setminus \{b[j] \mid 0 \le j < m\} \ne \emptyset$

5. $\#\{a[i] \mid 0 \le i < n\} \le 5$