姓名：曾加明建　学号：1820221053　课程：离散数学　（第六章）

6-22：设 $S = \{x \in Z^+ \wedge 1 \le x \le 300\}$

$A = \{x \in S \wedge x$ 能被3整除$\}$

$B = \{x \in S \wedge x$ 能被5整除$\}$

$C = \{x \in S \wedge x$ 能被7整除$\}$

$|A| = \lfloor 300/3 \rfloor = 100$　　$|A \cap B| = \lfloor 300 / Lcm(3,5) \rfloor = 20$

$|B| = \lfloor 300/5 \rfloor = 60$　　$|A \cap C| = \lfloor 300 / Lcm(3,7) \rfloor = 14$

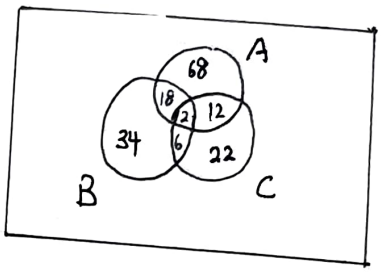
$|C| = \lfloor 300/7 \rfloor = 42$　　$|B \cap C| = \lfloor 300 / Lcm(5,7) \rfloor = 8$

$|A \cap B \cap C| = \lfloor 300 / Lcm(3,5,7) \rfloor = 2$

(1) $|A \cap B \cap C| = 2$

(2) $|\bar{A} \cap \bar{B} \cap \bar{C}| = 300 - (68+12+18+2+6+22+34)$

$= 138$



(3) $|A \cap \bar{B} \cap \bar{C}| = 68$

(4) $|A \cup B \cap \bar{C}| = 34 + 18 + 68$

$= 120$

(5) $|(A \cap \bar{B} \cap \bar{C}) \cup (\bar{A} \cap B \cap \bar{C}) \cup (\bar{A} \cap \bar{B} \cap C)| = 68 + 34 + 22$

$= 124$

6-34：$(A-B) \cup (B-A) = (A \cap \sim B) \cup (B \cap \sim A)$

$= (A \cup B) \cap (A \cup \sim A) \cap (\sim B \cup B) \cap (\sim B \cup \sim A)$

$= (A \cup B) \cap \sim (A \cap B)$

$= (A \cup B) - (A \cap B)$

已知上式结果为 $A \cup B$

$\therefore (A \cup B) - (A \cap B) = A \cup B$

$\therefore A \cap B = \phi$

6-42 : $A \cup B = A \cup C \wedge A \cap B = A \cap C \Rightarrow B = C$

$$
\begin{aligned}
B &= B \cap (B \cup A) \\
&= B \cap (A \cup B) \\
&= B \cap (A \cup C) \\
&= (B \cap A) \cup (B \cap C) \\
&= (A \cap C) \cup (B \cap C) \\
&= \cancel{(A \cap C) \cup B \cap (A \cup B) \cap (A \cup C) \cap (C \cup B) \cap C} \\
&= (A \cup B) \cap C \\
&= (A \cup C) \cap C \\
&= C
\end{aligned}
$$