

1. $A = \{ \langle 0, -2 \rangle, \langle 0, -1 \rangle, \langle 0, 1 \rangle, \langle 1, -2 \rangle, \langle 1, -1 \rangle, \langle 2, -2 \rangle, \langle 2, -1 \rangle, \langle 2, 0 \rangle, \langle 2, 1 \rangle \}$

2. $\{x \mid x = 2n+1 \wedge n \in \mathbb{N} \wedge \neg (\exists a)(\exists b)(\langle a \in \mathbb{N}^+ \wedge a \geq 2 \wedge b \in \mathbb{N}^+ \wedge b \geq 2 \wedge x = ab \rangle)$

3. (1) $A = \{1\}, B = \{1, 1\}, C = \{1, 1, 1\}, A \subseteq C$

(2) $A = \{1\}, B = \{1, 1\}, C = \{1, 1, 1\}, 1 \in C, A \subseteq C$

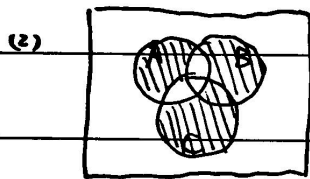
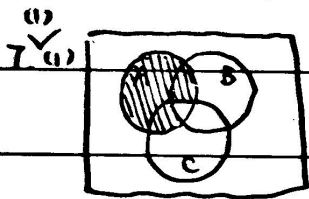
4. (1) 真 $A \subseteq B$ 且 $B \subseteq C$. 则 $(\forall x)(x \in B \rightarrow x \in C) \Rightarrow A \subseteq B \rightarrow A \subseteq C \Rightarrow A \subseteq C$

(2) 假 $A = \{1\}, B = \{1, 1\}, C = \{1, 1\}$. 则 $A \not\subseteq C$

5. (1) $\{\emptyset, \{a\}, \{a, a\}, \{a, \{a, a\}\}\}$

(2) $\{\emptyset, \{\emptyset\}, \{a\}, \{b\}, \{\emptyset, a\}, \{\emptyset, b\}, \{a, b\}, \{\emptyset, a, b\}\}$

(3) $P(\{a, b\}) \times P(\{a, b\}) = P(\{\emptyset\}) \times P(\{\emptyset\}) = \{\emptyset, \{\emptyset\}\} \times \{\emptyset, \{\emptyset\}\} = \{\langle \emptyset, \emptyset \rangle, \langle \emptyset, \{\emptyset\} \rangle, \langle \{\emptyset\}, \emptyset \rangle, \langle \{\emptyset\}, \{\emptyset\} \rangle\}$



(2) (1) $(B \cap C) - A$ (2) $(A \cap B \cap C) \cup -(A \cup B \cup C)$

9. (1) $A \cap B = \{1\}$

$\neg(A \cap B) = \{2, 3, 4, 5\}$

(2) $P(A) = \{\emptyset, \{1\}, \{4\}, \{1, 4\}\}, P(B) = \{\emptyset, \{1\}, \{2\}, \{5\}, \{1, 2\}, \{1, 5\}, \{2, 5\}, \{1, 2, 5\}\}$

$P(A) - P(B) = \{\{4\}, \{1, 4\}\}$