习题9.

1.(4)

$\{0,-2\},\{0,-1\},\{0\},\{2,0\},\{2,1\}$
$\{1,-1\},\{1,0\},\{1\},\{2,-2\},\{2,-1\}$
$\{1,-2\}$

2.4.

$\{x \mid x>2 \wedge x \in \mathbb{Z}^+ \wedge (\forall y)((y \in \mathbb{Z}^+) \wedge (y>1) \wedge (y \neq x) \rightarrow (\frac{x}{y} \notin \mathbb{Z}^+))\}$

3.

A为任意集合. $B=\{A\}$
$C=\{\{A\}\}$

4.

A为任意集合. $B=\{A,\{A\}\}$
$C=\{A,\{A,\{A\}\}\}$

选6,8,10

6.(1) 为真. 由定义: $\forall X(X \in B \rightarrow X \in C)$
又 $A \in B \therefore A \in C$.

(2) 假. $B=\{A\}$, $C=\{1,A\}$
但 $A \notin C$

(3) 假: $A=\{1\}$, $B=\{1,2\}$
$C=\{\{1,2\},3\}$

(4) 假: $A=\{1\}$, $B=\{\{1\},2\}$
$C=\{\{1\},3\}$

8. ① $\phi \in B$ 且 $\phi \subseteq B$
② $\{\phi\} \in B$ 且 $\{\phi\} \subseteq B$
③ $\{\{\phi\}\} \in B$ 且 $\{\{\phi\}\} \subseteq B$

$P(\phi)=\{\phi\}$ $P(P(\phi))=P(\{\phi\})$
$=\{\phi,\{\phi\}\}$ $P(P(P(\phi)))$
$=P(\{\phi,\{\phi\}\})=\{\phi,\{\phi\},\{\{\phi\}\},$
$\{\phi,\{\phi\}\}\}$

10.

① $B \cap C - A \cap B \cap C$

$= B \cap C - A$

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

12.

① $A \cap -B = \{4\}$

② $(A \cap B) \cup -C = \{1, 3, 5\}$

③ $-(A \cap B) = \{2, 3, 4, 5\}$

⑤ $P(A) = \{\phi, \{1\}, \{4\}, \{1, 4\}\}$

$P(B) = \{\phi, \{1\}, \{2\}, \{5\}, \{1, 2\}, \{1, 5\}, \{2, 5\}, \{1, 2, 5\}\}$

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