Let A,B, and C be any sets and U the universal set, then:

2.
$$A \cup A = A$$

3. $A \cap \emptyset = \emptyset$

1. $A \cap A = A$

3.
$$A \cap \emptyset = \emptyset$$

4. $A \cup \emptyset = A$

4.
$$A \cup \emptyset = A$$

$$5. A \cap U = A$$

$$5. A \cap U = A$$
$$6. A \cup U = U$$

9.
$$(A^c)^c = A$$

7. $A \cap B = B \cap A$ 8. $A \cup B = B \cup A$

10.
$$(A \cap B) \cap C = A \cap (B \cap C)$$

11.
$$(A \cup B) \cup C = A \cup (B \cup C)$$

12.
$$A \cap (B \cup C) = (A \cap B) \cup (A \cap C)$$

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

13.
$$A \cup (B \cap C) = (A \cup B) \cap (A \cup C)$$

$$(B \cap C) =$$

$$(B \cap C) = C \cap B \Leftrightarrow A \cap B$$

14.
$$A \subseteq B \Leftrightarrow A \cap B = A$$

15.
$$A\subseteq B\Leftrightarrow A\cup B=B$$

16. $A\subseteq B\Leftrightarrow B^c\subseteq A^c$

17. $A \cap B \subseteq A \subseteq A \cup B$

18. $C-(A\cap B)=(C-A)\cup(C-B)$ 19. $C-(A\cup B)=(C-A)\cap(C-B)$

20. $(B-A) \cup C = (B \cup C) - (A-C)$