

## Some Important Set Equivalences

| Equivalence                                                                                                      | Name                |
|------------------------------------------------------------------------------------------------------------------|---------------------|
| $A \cup \emptyset = A$<br>$A \cap U = A$                                                                         | Identity Laws       |
| $A \cup U = U$<br>$A \cap \emptyset = \emptyset$                                                                 | Domination Laws     |
| $A \cup A = A$<br>$A \cap A = A$                                                                                 | Idempotent Laws     |
| $\overline{\overline{A}} = A$                                                                                    | Complementation Law |
| $A \cup B = B \cup A$<br>$A \cap B = B \cap A$                                                                   | Commutative Laws    |
| $A \cup (B \cap C) = (A \cup B) \cap C$<br>$A \cap (B \cup C) = (A \cap B) \cup C$                               | Associative Laws    |
| $A \cap (B \cup C) = (A \cap B) \cup (A \cap C)$<br>$A \cup (B \cap C) = (A \cup B) \cap (A \cup C)$             | Distributive Laws   |
| $\overline{A \cup B} = \overline{A} \cap \overline{B}$<br>$\overline{A \cap B} = \overline{A} \cup \overline{B}$ | De Morgan's Laws    |
| $A \cup (A \cap B) = A$<br>$A \cap (A \cup B) = A$                                                               | Absorption Laws     |
| $A \cup \overline{A} = U$<br>$A \cap \overline{A} = \emptyset$                                                   | Complement Laws     |