

Chapter 3 Study Sheet (Set Theory and Logic)

$4 \in A$ ← is an element of

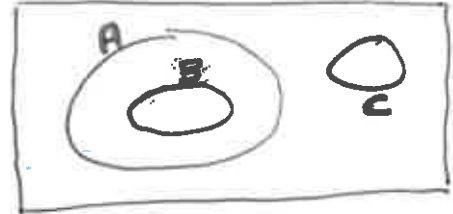
A' ← complement (everything not in A)

$\{\}$ or \emptyset empty set

$n(A)$ number of elements in A

Venn Diagram

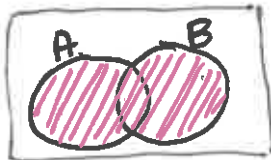
-include all elements (but only once each!)



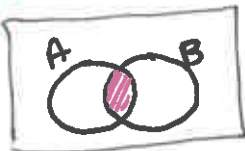
A and C are disjoint
B and C are disjoint.

$B \subset A$
← is a subset of

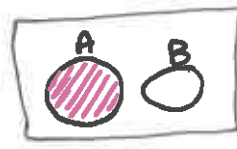
$A \cup B$ ← union (OR)



$A \cap B$ ← intersection (AND)



$A \setminus B$ ← minus

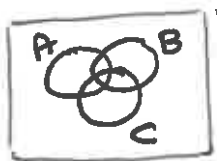


Principle of Inclusion and Exclusion



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

$$n(A \cup B) = n(U) - n(A \cup B)'$$



$$n(A \cup B \cup C) = n(A) + n(B) + n(C) - n(A \cap B) - n(A \cap C) - n(B \cap C) + n(A \cap B \cap C)$$

<p>CONDITIONAL STATEMENT</p> <p>If p, then q</p> <p><i>hypothesis</i> <i>conclusion</i></p>	<p>Switched</p> <p>CONVERSE</p> <p>If q, then p</p>
<p>INVERSE</p> <p>If not p, then not q</p> <p><i>negate</i></p>	<p>CONTRAPOSITIVE</p> <p>If not q, then not p</p>

Conditional Statement is **FALSE** only if hypothesis is true and conclusion is false.

Biconditional

conditional statement and converse are both true
if and only if