SETS and COUNTING FORMULAS

DeMorgan's Laws for Set:
$(A \cup B)' = A' \cap B'$
and
$(A \cap B)' = A' \cup B'$

Cardinal Number Rules:

for unions and intersections:
$n(A \cup B) = n(a) + n(B) - n(A \cap B)$
and
for complements:
$n(A) + n(A') = n(U)$

Permutations: $_nP_r = \dfrac{n!}{(n-r)!}$

Combinations: $_nC_r = \dfrac{n!}{r!(n-r)!}$

Factorials:
$n! = (n) * (n-1) * (n-2) * (n-3) * \cdots * 3 * 2 * 1$
and
$0! = 1$