

# Rec 2/30

Tuesday, August 30, 2016 7:53 AM

Inclusion-exclusion formula:

Given  $A_1, \dots, A_n \in S,$

$$P\left(\bigcup_{i=1}^n A_i\right) = \sum_{i=1}^n P(A_i) - \sum_{1 \leq i < j \leq n} P(A_i \cap A_j) + \sum_{1 \leq i < j < k \leq n} P(A_i \cap A_j \cap A_k) - \dots + (-1)^{n+1} P\left(\bigcap_{i=1}^n A_i\right)$$