

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

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$$\overline{(A \cap B)} = \bar{A} \cup \bar{B}$$

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Combinatorial Formulas:

$$\frac{n!}{(n-r)!} \quad \frac{n!}{n_1!n_2! \cdots n_k!} \quad \frac{n!}{r!(n-r)!}$$

$$P(B_j|A) = \frac{P(A|B_j)P(B_j)}{\sum_{i=1}^k P(A|B_i)P(B_i)}$$

$$P(B|A) = \frac{P(A|B)P(B)}{P(A|B)P(B) + P(A|\bar{B})P(\bar{B})}$$

$$p(y) = \binom{n}{y} p^y q^{n-y}$$

$$np \quad npq$$