

**GATE Notes,
Probability Formulas**

Probability Range

$$0 \leq P(A) \leq 1$$

Rule of Complementary Events

$$P(A^c) + P(A) = 1$$

Rule of Addition

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

Disjoint Events

Events A and B are disjoint iff

$$P(A \cap B) = 0$$

Independent Events

Events A and B are independent iff

$$P(A \cap B) = P(A) \cdot P(B)$$

Conditional Probability

$$P(A | B) = P(A \cap B) / P(B)$$

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