

**Theorem: 1.1-6**

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If  $A, B$  and  $C$  are three events, then

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

**Proof**