

## 4.8: Chapter 4 Formulas

<b>Complement Rules:</b> $P(A) + P(A^C) = 1$ $P(A) = 1 - P(A^C)$ $P(A^C) = 1 - P(A)$	<b>Mutually Exclusive Events:</b> $P(A \cap B) = 0$
<b>Union Rule:</b> $P(A \cup B) = P(A) + P(B) - P(A \cap B)$	<b>Independent Events:</b> $P(A \cap B) = P(A) \cdot P(B)$
<b>Intersection Rule:</b> $P(A \cap B) = P(A) \cdot P(B A)$	<b>Conditional Probability Rule:</b> $P(A   B) = \frac{P(A \cap B)}{P(B)}$
<b>Fundamental Counting Rule:</b> $m_1 \cdot m_2 \cdots m_n$	<b>Factorial Rule:</b> $n! = n \cdot (n-1) \cdot (n-2) \cdots 3 \cdot 2 \cdot 1$
<b>Combination Rule:</b> ${}_n C_r = \frac{n!}{(r!(n-r)!)}$	<b>Permutation Rule:</b> ${}_n P_r = \frac{n!}{(n-r)!}$

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