Here is a short list that covers most of what we want to do.

\[ \int_{-\infty}^{\infty} f(x) dx = 1 \]

\[ E(h(X)) = \int_{-\infty}^{\infty} h(x) f(x) dx \]

\[ P(A \cup B) = P(A) + P(B) - P(A \cap B) \]

For independent events A and B, \( P(A \cap B) = P(A) P(B) \)

\[ P(A \mid B) = \frac{P(A \cap B)}{P(B)} \]

\[ P\left(A \cap (B \cup \overline{B})\right) = P(A \cap B) + P(A \cap \overline{B}) \]