3.9: Formula Review

3.2: Terminology.

A and B are events
$P(S) = 1$ where S is the sample space

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

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

3.3: Independent and Mutually Exclusive Events

If A and B are independent, $P(A \cap B) = P(A)P(B)$, $P(A \mid B) = P(A)$ and $P(B \mid A) = P(B)$.
If A and B are mutually exclusive, $P(A \cup B) = P(A) + P(B)$ and $P(A \cap B) = 0$.
3.3 Two Basic Rules of Probability.

The multiplication rule: $P(A \cap B) = P(A \mid B)P(B)$
The addition rule: $P(A \cup B) = P(A) + P(B) - P(A \cap B)$