You should start thinking about **Interpretations of probability**:

- **Symmetry**: If there are $k$ equally-likely outcomes, each has $P(E) = 1/k$;
- **Frequency**: If you can repeat an experiment indefinitely, $P(E) = \lim_{n \to \infty} \frac{\#E}{n}$;
- **Belief**: If you are indifferent between winning $\$1$ if $E$ occurs or winning $\$1$ if you draw a blue chip from a box with 10000 chips of which $100 \times p$ are blue chips, then $P(E) = p$.

You should know the **axioms of probability**. The probability $P$ of some event $E$ must satisfy a set of rules which were laid out by Kolmogorov (Kolmogorov’s axioms):

1. **Nonnegative**: $P(E) \geq 0$
2. **Addition**: $P(E \cup F) = P(E) + P(F)$ if $E \cap F = \emptyset$
3. **Countable addition**: $P(\bigcup E_i) = \sum P(E_i)$ if $E_i \cap E_j = \emptyset$ for $i \neq j$. Each $E_i$ is called a countable partition.
4. **Sum to one**: $P(\Omega) = 1$.

You should understand the idea of a **sample space and events**. Also start to understand the relation between probability and sets and be able to compute the probability of events.