Solving Complex Probability Problems: Takeaways

Concepts

- The opposite of a set E is called its **complement**, and it's denoted as E^C.
- For any random experiment either event E or E^C will happen, so the event *"E or non-E"* is certain and has a probability of 1:

$$P(E \cup E^C) = P(E) + P(E^C) = 1$$

- The **multiplication rule** says that for two events E_1 and E_2, the probability that both event E_1 **and** E_2 happen can be found by multiplying the probability of E_1 by the probability of E_2:

$$P(E_1 \cap E_2) = P(E_1) \times P(E_2)$$

- The multiplication rule only works for **independent events**. Events that don't influence each other's probability are called independent events.
- When we sample an element from a group and put the element back, we're **sampling with replacement**.
- When we sample an element from a group but don't put it back, we're **sampling without replacement**.

Resources

- A nice tutorial on independent events
- A brief tutorial that covers types of events