Notation for Events

- $A \cap B =$
- $A \cup B =$
- $A^c =$
Set Theory Rules

- Associative Law:
- Commutative Law:
- Distributive Law:
- DeMorgan’s Law:
Probability Rules

- Inclusion-Exclusion Rule:
- Complement Rule:
- Difference Rule:
Conditional Probability

Meet someone who was born in a long month (31 days) and want to know probability that they were born in a month with letter “r”.
Conditional Probability

- Definition:
Conditional Probability

- Definition:

- Multiplication rule for joint probabilities:
Tree Diagram
Samping Without Replacement

I have a box with 10 red balls and 10 green balls. I draw 2 balls from the box without replacing them. What is the probability that I get 2 red balls?
Samping Without Replacement

If I draw 3 balls without replacement, what is the probability that they are all red?
In Class Problem

A fair die is thrown twice. \( A \) is the event sum of values is 5. And \( B \) is the event that at least one throw is a 2. Calculate \( P(A \mid B) \).
In Class Problem

You have two urns, one with 4 black balls and 3 white balls, the other with 2 black balls and 2 white balls. You pick one urn at random and then select a ball from the urn. What is the probability the ball is white?