occur in a single performance of the experiment

- Denoted A—B
- The intersection of two events A and B is the event that occurs if both A and B occur on a single performance of the experiment
 - Denoted A—B









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Complementary Events

- The complement of an event wis the event that 3 does not occur
 - The event consisting of all sample points that are not in A • Prepried A by A^c
- The sum of the probabilities of complementary events equals 1

 P(A) + P(A^c) = 1

The Additive Rule and Mutually Exclusive Events

- The probability of the union of events A and B is the sum of the probabilities of events A and B minus the probability of the intersection of events A and B

 P(A B) = P(A) + P(B) P(A B)
- Events A and B are mutually exclusive is A—B contains no sample points
 A and B have no sample points in common
- If two events A and B are mutually exclusive, the probability of the union of A and B equals the sum of the probabilities of A and B
 - $\circ \quad P(A B) = P(A) + P(B)$

Conditional Probability

- Unconditional Probabilities: no special conditions are specified
- A probability that reflects additional knowledge that may affect the outcome of an experiment is called the conditional probability of the event
- To find the conditional probability that event A occurs given that event B occurs. divide the probability that both A and B occur by the probability that B occurs
 - $\circ \quad P(A/B) = P(A \frown B)/P(B)$

The Multiplicative Rule and Independent Events