

AP Statistics

2019-01-29 5.2 Probability Rules

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The **sample space S** of a chance process is the set of all possible outcomes

A **probability model** describes the sample space S and the probability of each outcome within S.

An **event** is a collection of outcomes from a chance process (a sub-space of the sample space)

Events are typically named with capital letters (A,B,C)

The probability of an event is denoted like $P(A)$

When two dice are rolled, we could define event A as the sum being 5 (1/4, 2/3, 3/2, 4/1)

Two events are **mutually exclusive** if they have no outcomes in common (and thus, cannot occur together)

Probability for either of two events can only be found by adding if they are mutually exclusive

Complement rule: $P(A^C) = 1 - P(A)$

A probability is a legitimate probability model if all probabilities are between 0 and 1 and the sum = 1