conditional probability: the probability of an event occurring given that another event has already occurred

> Example: A math teacher gave her class two tests. 25% of the class passed both tests and 42% of the class passed the first test. What percent of those who passed the first test also passed the second test? This problem describes a conditional probability because it asks you to find the probability that the second test was passed given that the first test was passed.

dependent events: events whose outcomes are affected by each other

> Example: A card is chosen at random from a standard deck of 52 playing cards. Without replacing it, a second card is chosen.

event: a possible outcome of an experiment or investigation

> Example: When tossing a coin two events are possible – getting heads or getting tails.

experimental probability: probability determined using data collected from an experiment or investigation.

fair game: a game in which all the players are equally likely to win

> Example: Tossing a coin to get heads or tails.

independent events: events whose outcomes are not affected by each other

> Example: A dresser drawer contains one pair of socks with each of the following colours: blue, brown, red, white, and black. Each pair is folded together in a matching set. You reach into the sock drawer and choose a pair of socks without looking. You replace this pair and then choose another pair of socks.

mutually exclusive: two or more events that cannot occur at the same time

> Example: Getting a head *and* a tail when tossing a coin are mutually exclusive because they cannot occur at the same time.

non-mutually exclusive: two or more of events that can occur simultaneously

> Example: Drawing a red card and a three from a deck of cards are non-mutually exclusive events because they can happen at the same time.

odds against: the ratio of the probability that an event will not occur to the probability that the event will occur.

> Example: Odds against is the ratio of the number of unfavourable outcomes to the number of favourable outcomes.

odds for (odds in favour): the ratio of the probability that an event will occur to the probability that the event will not occur.

> Example: Odds for is the ratio of the number of favourable outcomes to the number of unfavourable outcomes.

probability: the chance of an event happening, expressed as a percentage, fraction, ratio, or statement

> Example: $P(\text{rolling 6 on a dice}) = \dfrac{1}{6}$, $P(\text{tossing tails on a coin}) = 50\%$
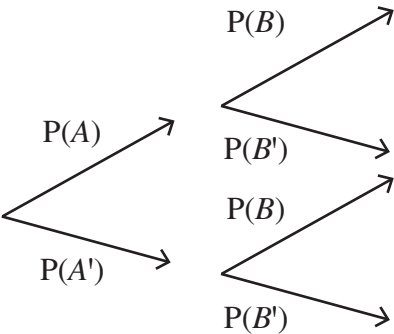
probability tree diagram: a type of graphic organizer that lists the probabilities of two or more events in a given situation in a tree format

Example:

The following probability tree diagram shows conditional probability for dependent events.
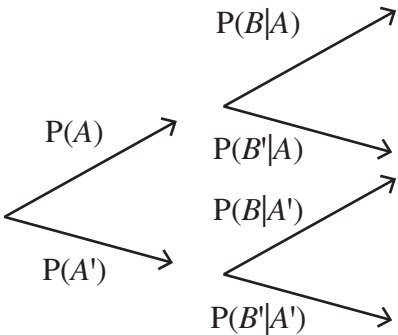
The following probability tree diagram shows independent events.

P(B|A)

P(A)

P(B'|A)

P(B|A')

P(A')

P(B'|A')

P(B)

P(A)

P(B')

P(B)

P(A')

P(B')

theoretical probability: the mathematical chance of something occurring