

Dependent and Independent Events

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Two events are **DEPENDENT** if the outcome of the first event affects the outcome of the second event. For example, if you draw a card from a deck and **do not** replace it for the next draw, the two events – drawing one card without replacing it, then drawing a second card – are dependent.

Two events are **INDEPENDENT** if the outcome of the first event does not affect the outcome of the second event. For example, if you draw a card from a deck but replace it before you draw again, the two events are independent.

Example 1

Aiden pulls an ace from a deck of regular playing cards. He does not replace the card. What is the probability of pulling out a second ace?

First draw: $\frac{4}{52}$ Second draw: $\frac{3}{51}$ aces left
cards left to pull from

This is an example of a dependent event – the probability of the second draw has changed.

Example 2

Tharon was tossing coins. He tossed a head. What is the probability of tossing a second head? $\frac{1}{2}$

The probability for the second event has not changed. This is an independent event.