

Product rule for independent events

$$P(A \text{ and } B) = P(A) \times P(B)$$

$$\text{Or more generally, } P(A_1 \text{ and } \dots \text{ and } A_k) = P(A_1) \times \dots \times P(A_k)$$

You toss a coin twice, what is the probability of getting two tails in a row?

$$P(\text{T on the first toss}) \times P(\text{T on the second toss})$$

$$= (1 / 2) \times (1 / 2) = 1 / 4$$