

Two events are independent if whatever happens does not affect the other one at all.

The probability of happening of two independent events is the product of the probability of both happening.

$$p(X = x \& Y = y) = p(X = x) \cdot p(Y = y)$$

The probability to get a 6 in each of two independent dices  $A$  and  $B$  is :

$$\underline{P(X = 6 \& Y = 6) = p(X = 6) \cdot p(Y = 6) = 1/6 \cdot 1/6 = 1/36}$$

The probability of rain one day in February in Sevilla is 35%, and that the Betis wins is of 75%.

What is the probability for not rain in Sevilla and for the Betis wins ?

$$P(\text{not rain}) = 1 - P(\text{rain}) = 0.65$$

$$\underline{P(\text{not rain}) \cdot P(\text{Betis wins}) = 0.65 \cdot 0.75 = 0.49 \Rightarrow 49\%}$$