EQUALLY LIKELY OUTCOMES

This scenario applies when (like the name suggests), all the outcomes in the outcome space are just as likely to get picked. Think of it this way, you have a closed box with 3 balls (1 red, 1 blue and 1 green). You pick one at random. There was nothing favouring one ball over the other so the probability of picking a red ball would be (1/3).

What we did was count the number of favourable outcomes and divided by the size of all possible outcomes. Formally,

$$P(\text{event}) = \frac{\#\text{ Favourable outcomes}}{\#\text{ Total possible outcomes.}}$$

EXAMPLE

If we take a fair, six-sided die, calculate the probability of getting an even outcome.

$$P(\text{even outcome}) = \frac{\#\{2,4,6\}}{\#\{1,2,3,4,5,6\}} = \frac{3}{6} = \frac{1}{2}$$