

Empirical probability of an event is an "estimate" that the event will happen based on how often the event occurs after collecting data or running an experiment (in a large number of trials). It is based specifically on direct observations or experiences.

So we have empirical probability formula:

$$P(E) = \frac{\text{\# of times event } E \text{ occurs}}{\text{total \# of observed occurrences}},$$

$P(E)$ = probability that an event, E , will occur.

of times event E occurs = number of ways the specific event occurs.

total # of observed occurrences = number of ways the experiment could occur.

So we can find empirical probability using the formula.