

Experimental

Actual results for a number of outcomes.

Actually conducting the experiment.

Theoretical

If all the results were equally likely to happen, then it is the calculated (predicted) results.



10 results
5 A's
5 B's
5 outcomes
5 trials

50% A's
50% B's

total # of outcomes
of favorable outcomes
(probability outcomes)

10
5
5

$$\frac{10}{10} = 1$$

100% A's
100% B's

Probability

- how likely it is for an event to happen.
- if the event has 100% chance of happening, then the probability is one (1).
- if the event will NOT happen, then the probability is zero.

outcomes -- all possible outcomes.

favorable outcome -- result for a particular event to occur

Compound events -- the result of combining 2 or more events.

Example: Rolling a dice and getting a 4 AND tossing a coin and getting heads

$$\frac{1}{6} \times \frac{1}{2} = \frac{1}{12}$$

P(favorable outcomes)

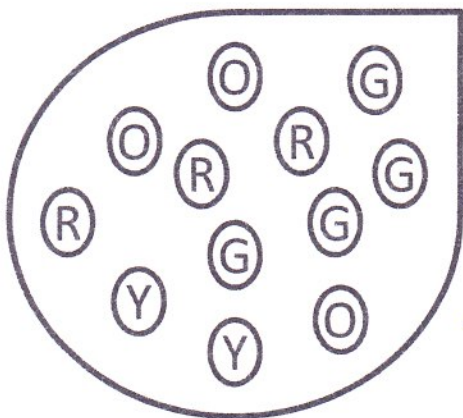
of favorable outcomes

total # of outcomes

Sample Space:

4 Green
3 Orange
2 Yellow
3 Red

12 Total



Probability of:

Picking green

$$\frac{4}{12} = \frac{1}{3}$$

Picking red or yellow

$$\begin{array}{r} 3 \text{ Red} \\ 2 \text{ Yellow} \\ \hline 5 \end{array} \quad \frac{5}{12}$$

Independent Events

2 events where the outcome of the 1st event does not affect the outcome of the 2nd event.

P(picking orange) putting it back and picking a yellow

Dependent Events

2 events where the outcome of the 1st event does affect the outcome of the 2nd event.

P(picking red) not putting it back in the bag then picking green