

Probability

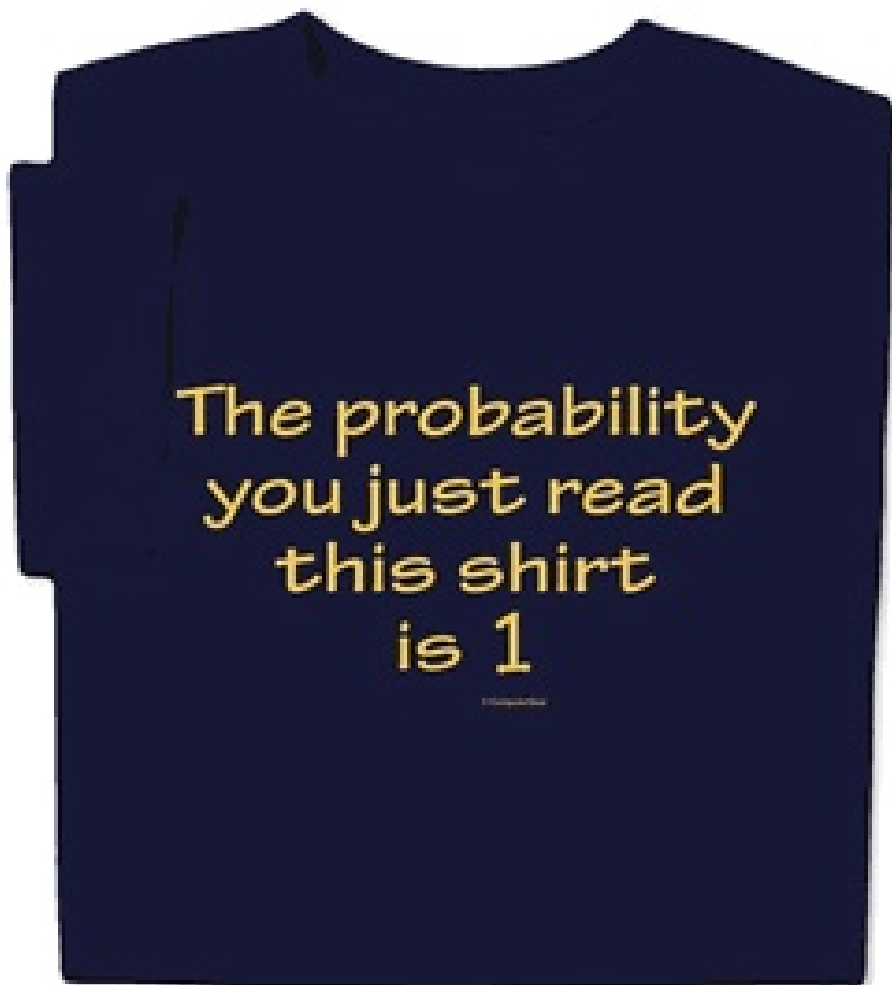


"I'm sorry, but we weren't able to find you a job that provides you with free golf clubs, and pays you to golf all day."



"THE PROBABILITY OF SOMEONE WATCHING YOU IS PROPORTIONAL TO THE STUPIDITY OF YOUR ACTIONS."

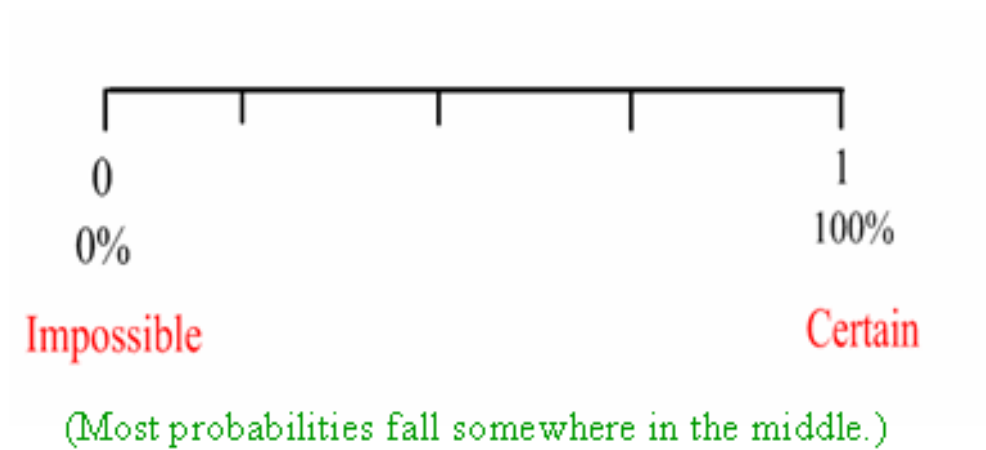




What do you think of when you think of the term **probability**?

Who uses probability as part of their job?

Probabilities can range from **0 to 1 (fractions)**
or from **0% to 100% (percents)**.



$$P(\text{event}) = \frac{\text{number of favorable outcomes}}{\text{number of possible outcomes}}$$

Independant Events:

The first event is not affected by the other.

Dependant Events:

The outcome of the first event affects the outcome of the second

In my bucket, I have 4 white, 3 red, and 1 blue marble.

$$P(\text{red}) = \frac{3}{8}$$

$$P(\text{white}) = \frac{4}{8} = \frac{1}{2} \text{ or } 50\%$$

$$P(\text{not blue}) = \frac{7}{8}$$

$$P(\text{red or blue}) = \frac{4}{8}$$

$$P(\text{purple}) = 0$$

$$P(\text{red, white, or blue}) = 1$$

There are **TWO** types of probability!



Theoretical Probability

- Uses mathematics to find the answer
- Tells what is supposed to happen “in theory”

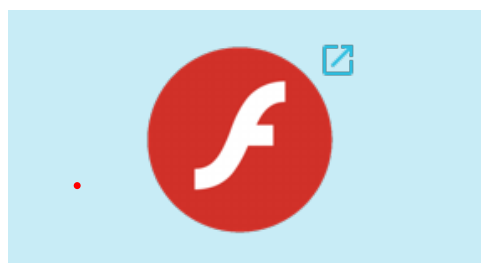
What is the **theoretical** probability of flipping a coin and getting tails?

Experimental Probability

- probability based on data collected
- you actually perform “an experiment”
- it doesn't always match the **theoretical** probability **BUT**
- if you perform the experiment many times (**billions!**) you should get very close or achieve the theoretical probability.

What is the **experimental** probability of flipping a coin and getting tails?

Heads	Tails



What is the **theoretical** probability of rolling a die cube and getting a 5?

What is the **experimental** probability of rolling a die cube and getting a 5?

Number of Rolls	5's



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