



PROBABILITY

Chances Are, You Are Unlikely To Be Chased Across A Swimming Pool
By An Electric Saw Thrown By A Mummy
Unless You're In A Cartoon, Of Course.

DIY.DESPAIR.COM



"Relax I know this road perfectly!
I've been driving it all my life!"



Assumptions

(Click for video)



Describe the assumption
each person is making.



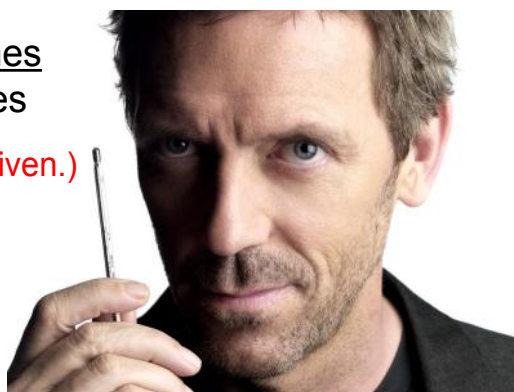
Theoretical & Experimental Probability (Click for video)



Theoretical Probability

$\frac{\text{\# of favorable outcomes}}{\text{\# of possible outcomes}}$

(Information is already given.)



Experimental Probability

$\frac{\text{\# of favorable outcomes}}{\text{total outcomes}}$

(You actually do an experiment.)

Theoretical

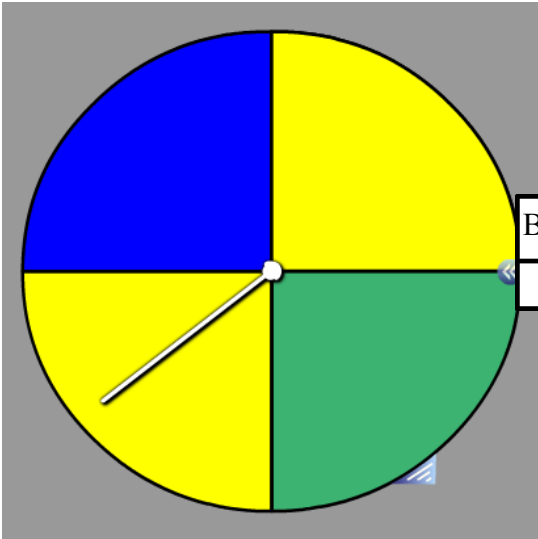
of favorable outcomes
of possible outcomes

The probability of spinning green is

Blue	Green	Yellow
$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{2}$
0.25	0.25	0.50
25%	25%	50%

Experimental

Spin the spinner 20 times to determine the probability of getting green.



Blue	Green	Yellow
###	###	###

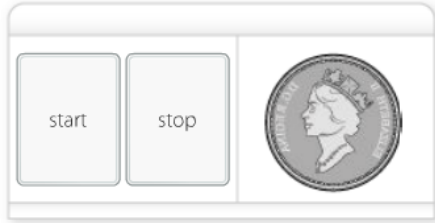
$\frac{\text{\# of favorable outcomes}}{\text{total outcomes}}$

Subjective Probability

To determine probability based on how you feel.



You win if the coin lands on heads.

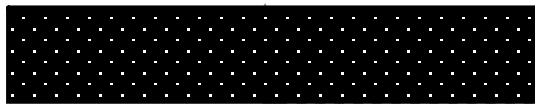


Even though there is a 50% chance of getting heads, what would they say??



What would they say??

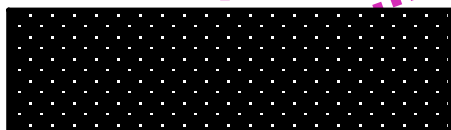
"Flip the coin.. it will be heads for sure, I always win!!"



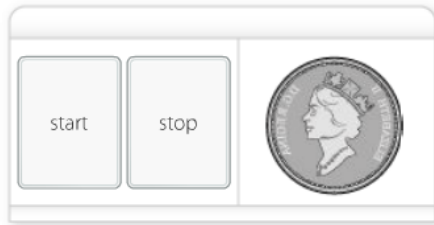
Subjective Probability

To determine probability based on how you feel.

"I don't care if you flip the coin or not, I never win!!"



"Flip the coin.. it will be heads for sure, I always win!!"



What would they say??



"I don't care if you flip the coin or not, I never win!!"



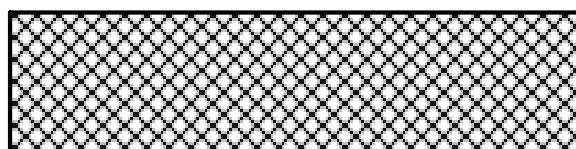
It is Ausma's experience that 4 out of 5 times the prize in the cereal box is found at the bottom of the box.

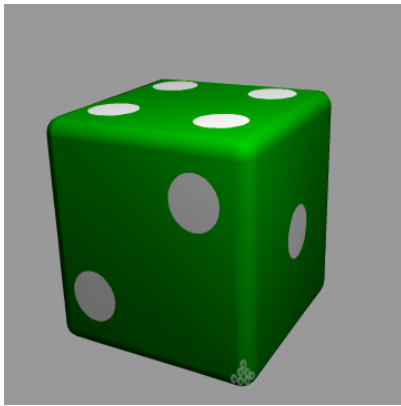
So, Ausma opens the bottom of the cereal box to find her prize.



Explain how her decision is based on Theoretical probability, experimental probability or subjective judgements

Her past experience is that the prize is at the bottom...
Experimental probability





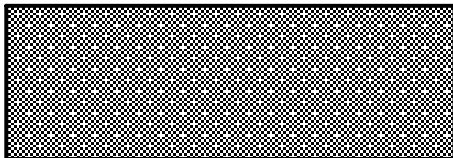
Two friends are rolling a die. Out of eight rolls made, a "4" came up 7 times.

Amith predicts the next roll will likely not be a "4", since each number has an equal chance of being rolled.

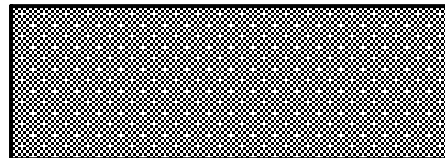
Maria decides the die is unfair since 7 out of 8 rolls revealed a "4".

Explain how their decision is based on Theoretical probability, experimental probability or subjective judgements

Amith
In theory, Amith knows that each number has a 1/6 chance of being rolled...
Theoretical probability



Maria
Based on the experimental probability, she felt the die must be unfair.
Subjective judgement



In past baseball games, Alice made 2 hits for every 5 times she went up to bat.

In the next game, suppose Alice goes up to bat. What is the probability that she will get a hit? What assumptions are you making?

★ Probability.... 2 out of 5
 $\frac{2}{5} = 0.4$ or 40%

★ The next team she plays will have an equal skill level as the teams she has played before.

For each assumption, explain how the predicted outcomes might change if the assumption changes.

★ If the next team has a higher skill level, she will probably not get 2 out of 5 hits.

★ If the next team has a lower skill level, then she will probably get more than 2 out of 5 hits.

erase erase

Using Probability to support Opposing Views

Jon wants to learn how to snowboard but does not want to take lessons. His mother insists that Jon take lessons, Jon and his mother find an article that claims...

68% of snowboarding injuries occur during beginner lessons

Mother....

Lessons are important because...



Son....

I shouldn't take lessons because...

Homework

PG. 427

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7 - 11, 14