

Probability Chapter 9.1

Read pages 424 - 427
#'s 3 - 14



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

of favorable outcomes
of possible outcomes

(Information is already given.)

Experimental Probability

of favorable outcomes
total outcomes

(You actually do an experiment.)

Theoretical

The probability of spinning green is

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

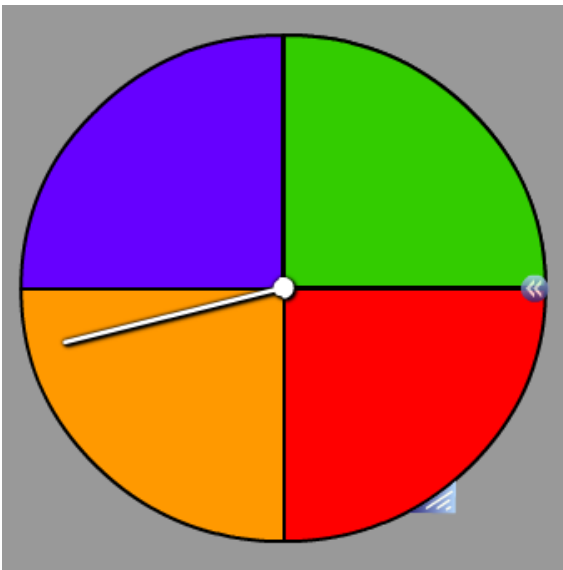
$$\frac{1}{4}$$

Experimental

Spin the spinner 12 times to determine the probability of getting green.

Blue |||| Orange |||
Green |||| Red |

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



Subjective Probability

To determine probability
based on how you feel.



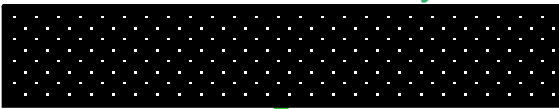
You win if the coin lands on heads.



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



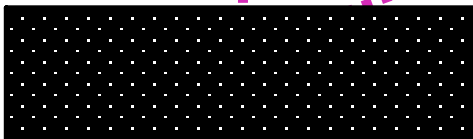
"Flip the coin.. it will be heads for sure, I always win!!"



Subjective Probability

To determine probability based on how you feel.

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

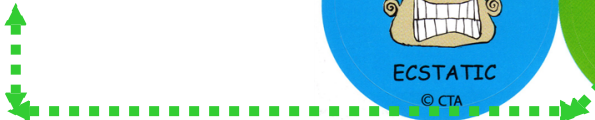


What would they say??



What would they say??

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



A 4x3 grid of 12 cartoon faces, each with a unique expression and a label below it. Each face is enclosed in a colored circle and has a small '© CTA' logo at the bottom. The emotions are: Row 1: ECSTATIC (blue circle), CONFIDENT (green circle), SURPRISED (yellow circle); Row 2: HOPEFUL (orange circle), HAPPY (red circle), CONFUSED (pink circle); Row 3: ANGRY (red circle), FRUSTRATED (purple circle), DISGUSTED (green circle); Row 4: LONELY (light blue circle), SAD (grey circle), HYSTERICAL (magenta circle).

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





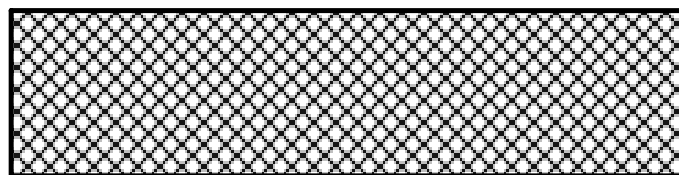
It is Anne's experience that 4 out of 5 times the prize in the cereal box is found at the bottom of the box.

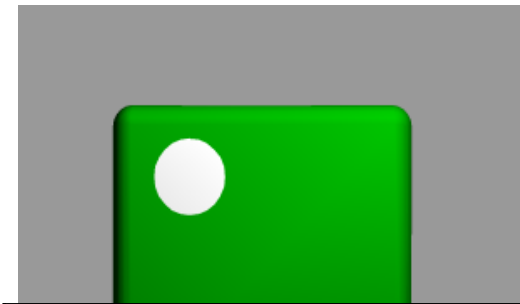
So, Anne opens the bottom of the cereal box to find her prize.



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 predicted

be a "4"

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**, then 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....



erase

Son....

I shouldn't take lessons because...

erase