Compound Events

Probability

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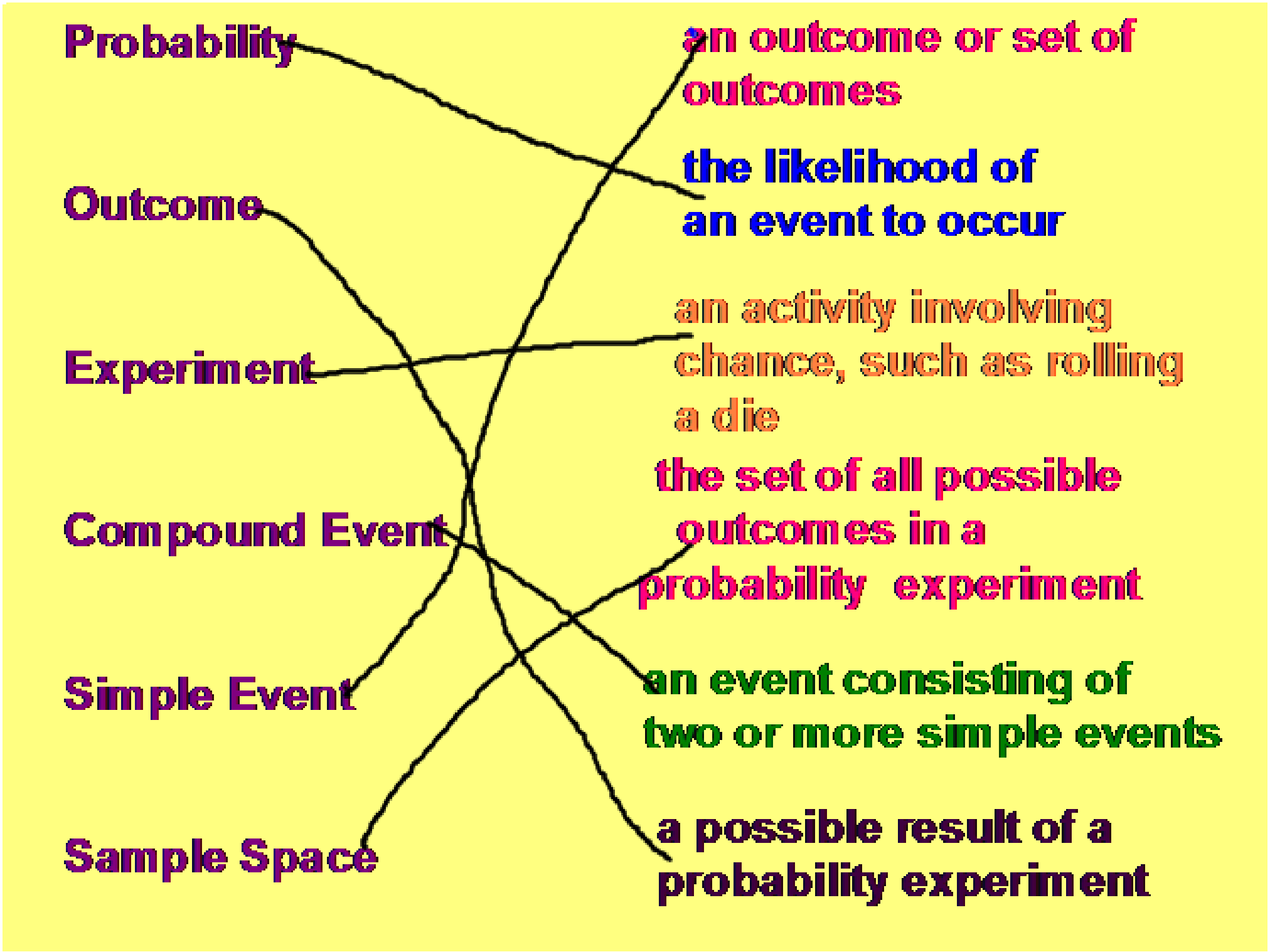
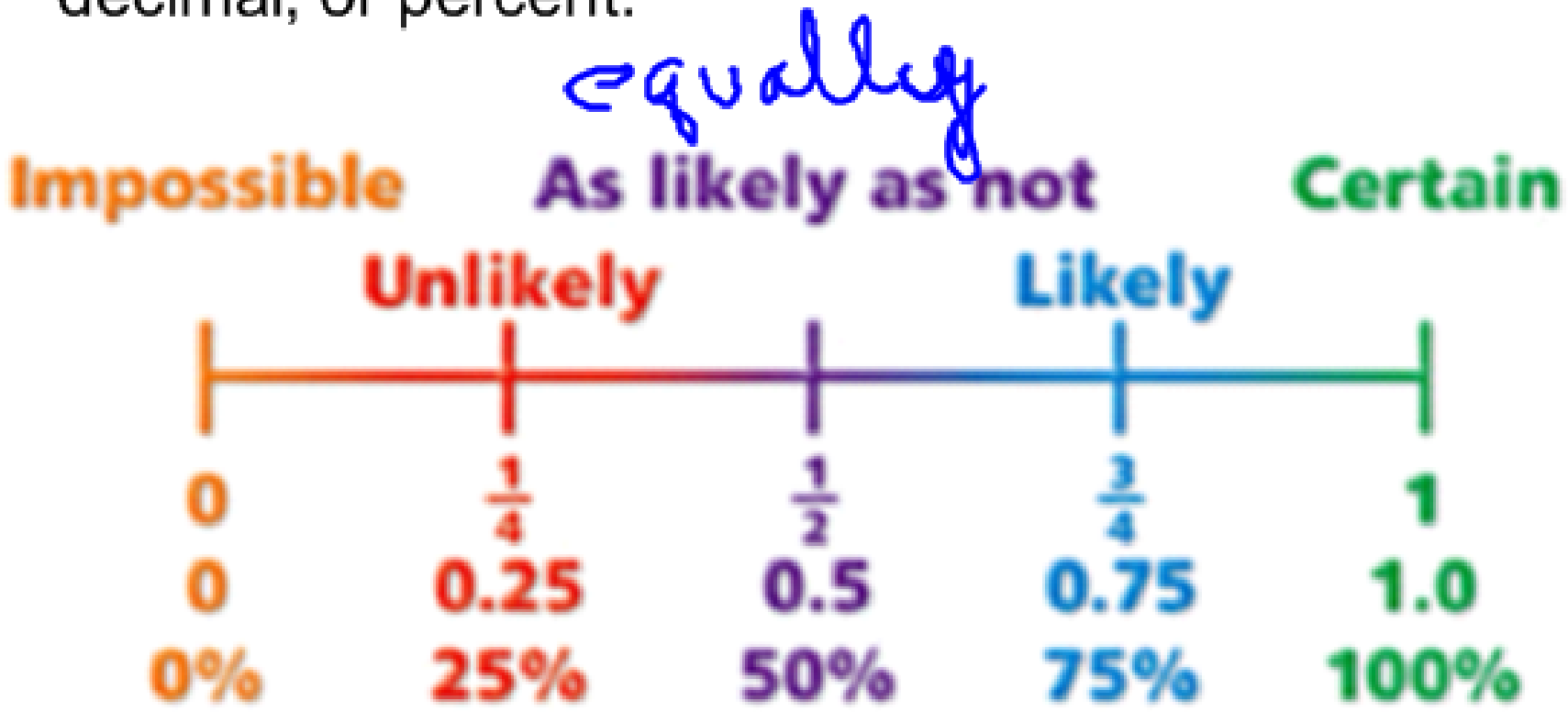
EQ: What is probability? How do we use probability to make predictions regarding various events?


Probability
Outcome
Experiment
Compound Event
Simple Event
Sample Space
an outcome or set of outcomes
the likelihood of an event to occur
an activity involving chance, such as rolling a die
the set of all possible outcomes in a probability experiment
an event consisting of two or more simple events
a possible result of a probability experiment

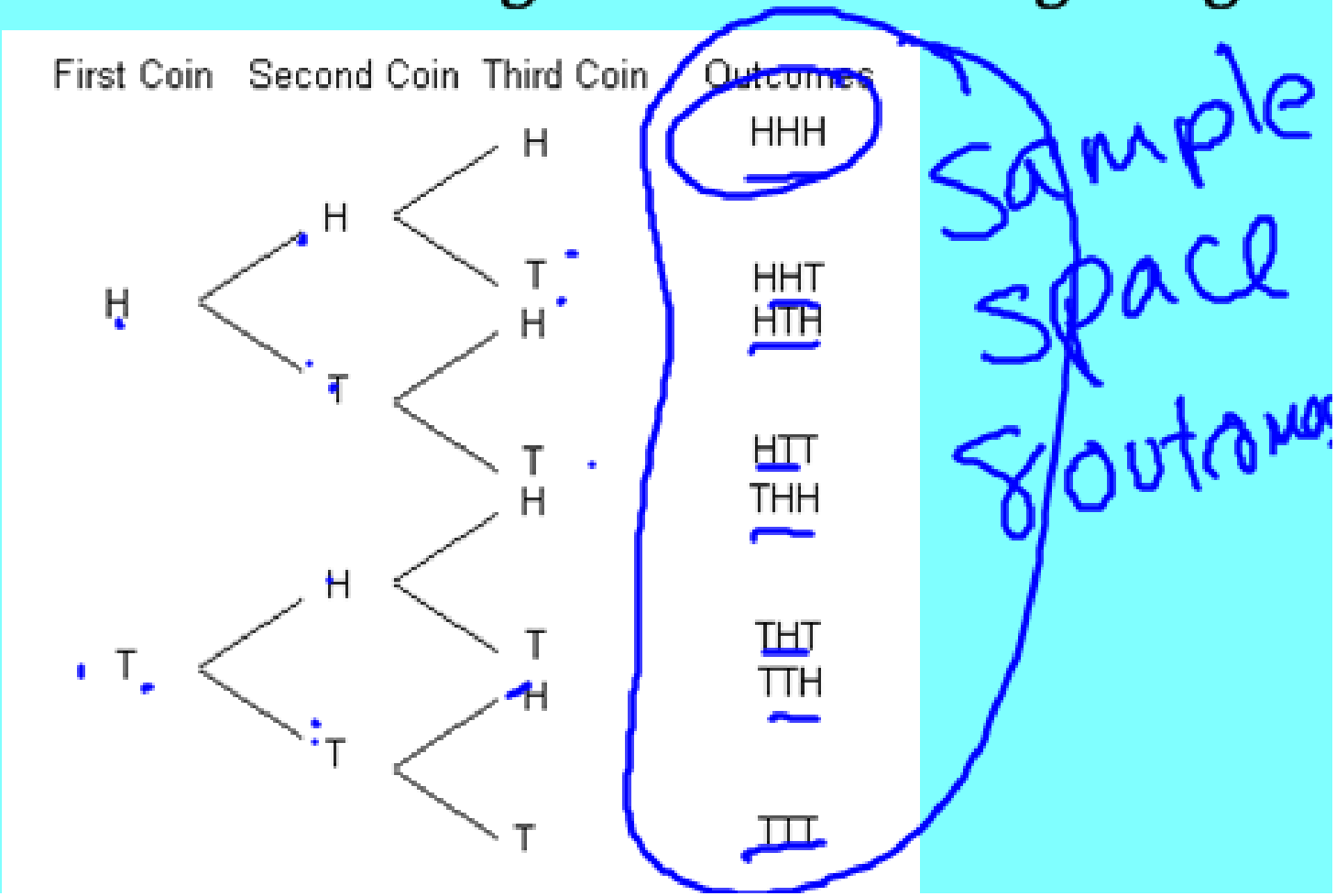
- Probability is the likelihood of an event to occur
- Probability is on a scale of 0 to 1
- Probability is always expressed as a fraction, decimal, or percent.

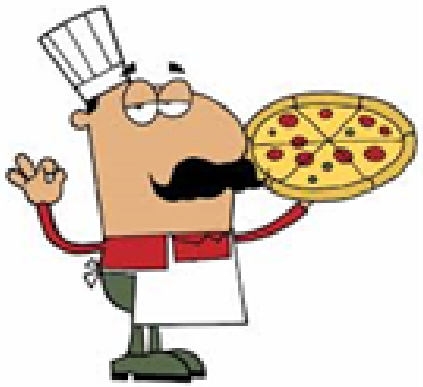


The set of all possible outcomes in a probability experiment is called the sample space. A compound event is an event consisting of two or more simple events.

Creating a "tree diagram" is one way to display compound events to determine the probability of an event, such as flipping three coins and determining the likelihood of getting all heads.

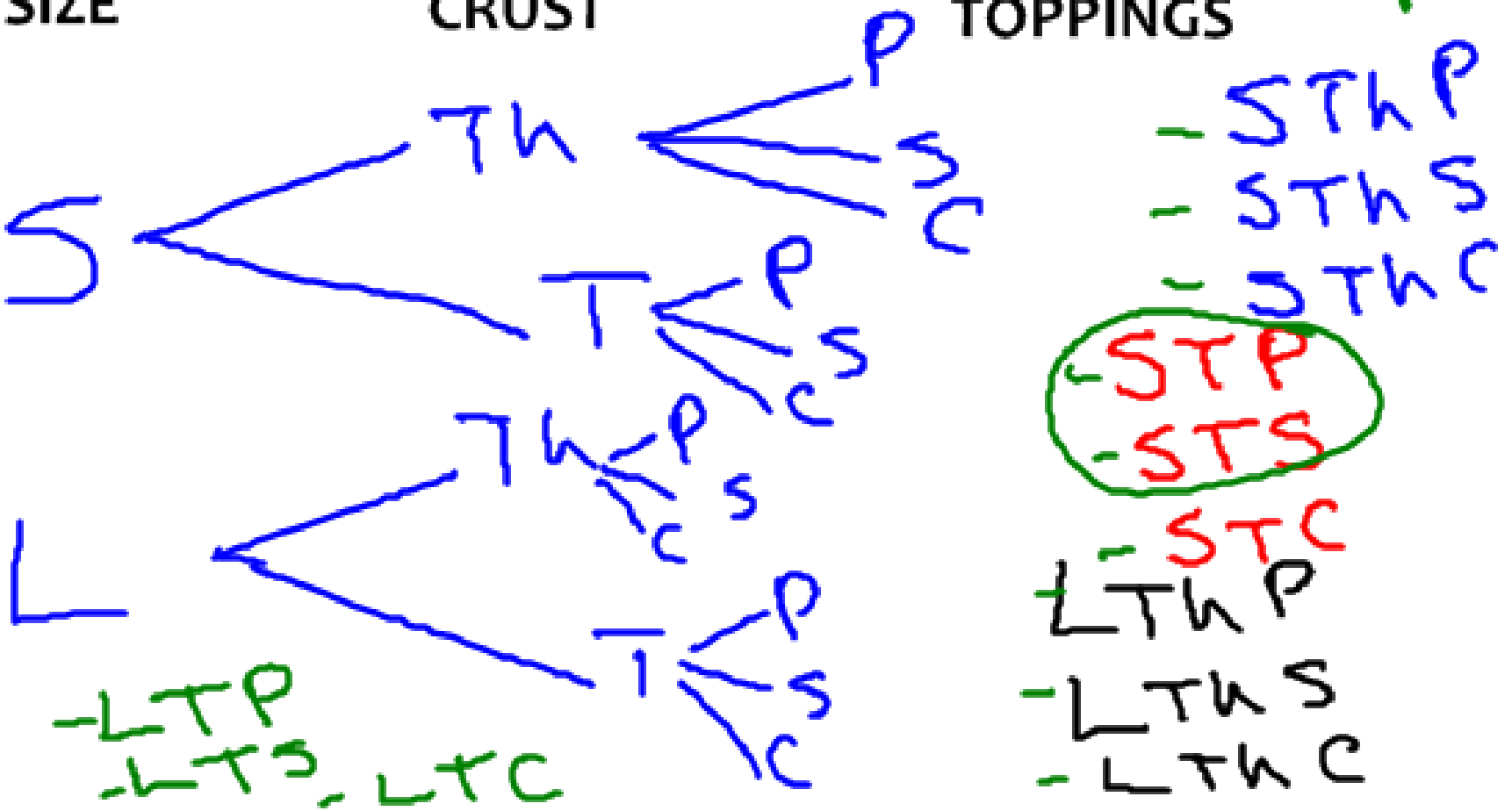
$\frac{1}{8}$





Lets create a tree diagram of the different types of pizza that can be made. We can have either small, or large pizza, thick or thin crust, and one topping that includes pepperoni, sausage, or cheese.

Sample space



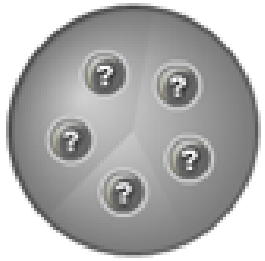
To win a carnival prize, you need to choose one of three doors labeled 1 through 3. Then you need to choose a red, yellow, or blue box behind each door. What is the probability that the prize is in the blue or yellow box behind door 2?

A 1/9

B 3/9

C 2/9

D 4/9



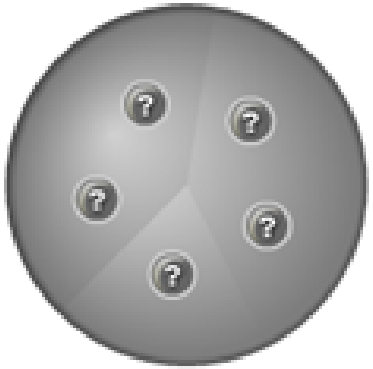
Outcomes	
Door 1	Red box
Door 1	Yellow box
Door 1	Blue box
Door 2	Red box
Door 2	Yellow box
Door 2	Blue box
Door 3	Red box
Door 3	Yellow box
Door 3	Blue box

How many different outcomes are there when you flip a coin and spin a spinner numbered 1 - 8?

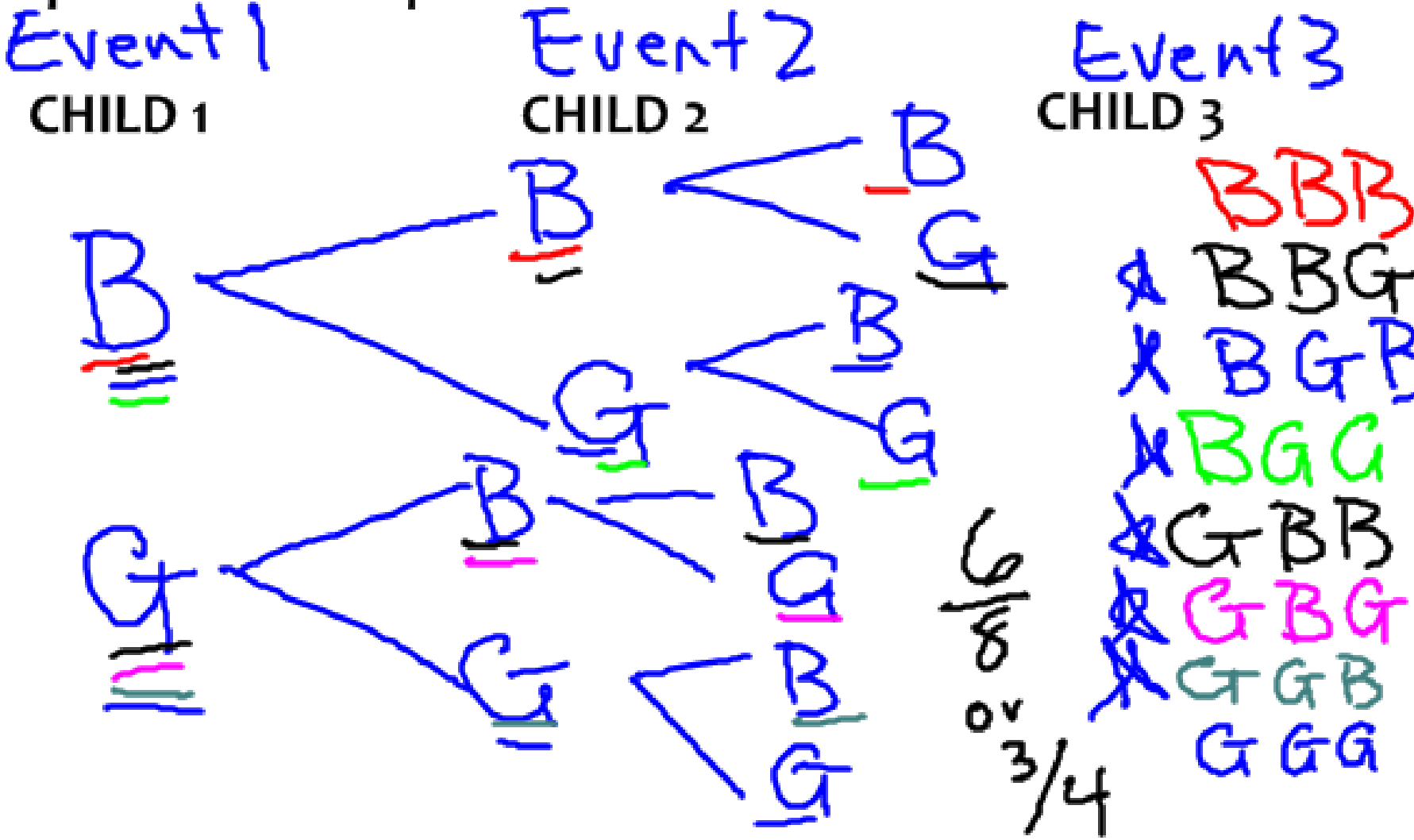
A 2

B 8

C 16



3. Mr. and Mrs. ~~Romero~~ Smith are expecting triplets. Suppose the chance of each child being a boy is 50% and of being a girl is 50%. Draw the tree diagram that shows the sample space of all the possible outcomes.



3. P(at least one boy and one girl)

A 1/4

B 1/8

C 1/2

D 3/4