

4.1.2 Multiple Events



By the end of this lesson, I will be able to answer the following questions...

1. How do I determine the probability of a certain event?
2. How do I determine the probability of multiple events?
3. How do I decide if multiple events are mutually exclusive?

Vocabulary

1. The probability of some event happening

$$P(\text{event})$$

2. The probability of **ANY** two events happening

$$P(A \text{ or } B) = P(A) + P(B) - P(A \text{ and } B)$$

3. Mutually Exclusive - No chance both outcomes can happen. **For example - a coin flip can't be BOTH heads or tails!**

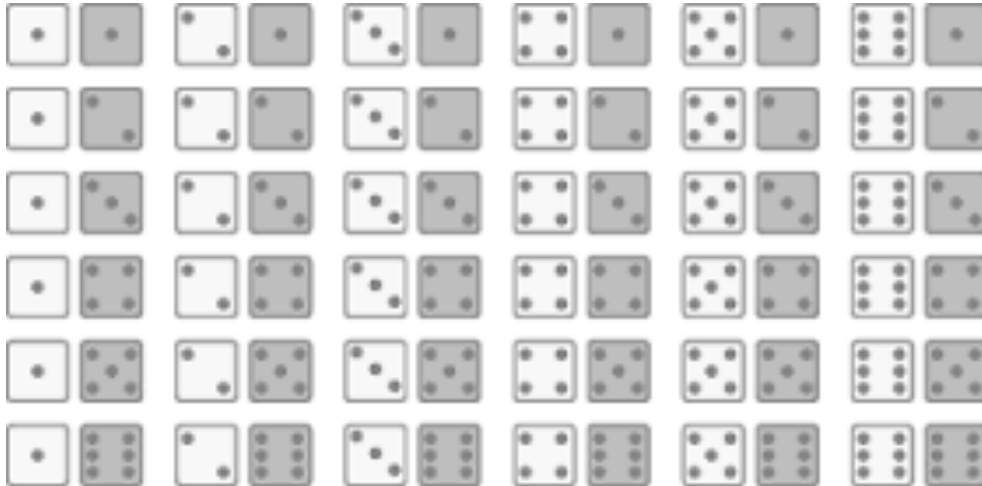
4. Not Mutually Exclusive - Outcome could have both characteristics. **For example - an UNO card CAN BE both a green card and a "Skip" card. It doesn't have to be one or the other!**



Prerequisite Skills with Practice



VS.



Building on what we have learned.....

Bobbi tosses a coin 3 times.

What is the probability that she gets exactly 2 heads?

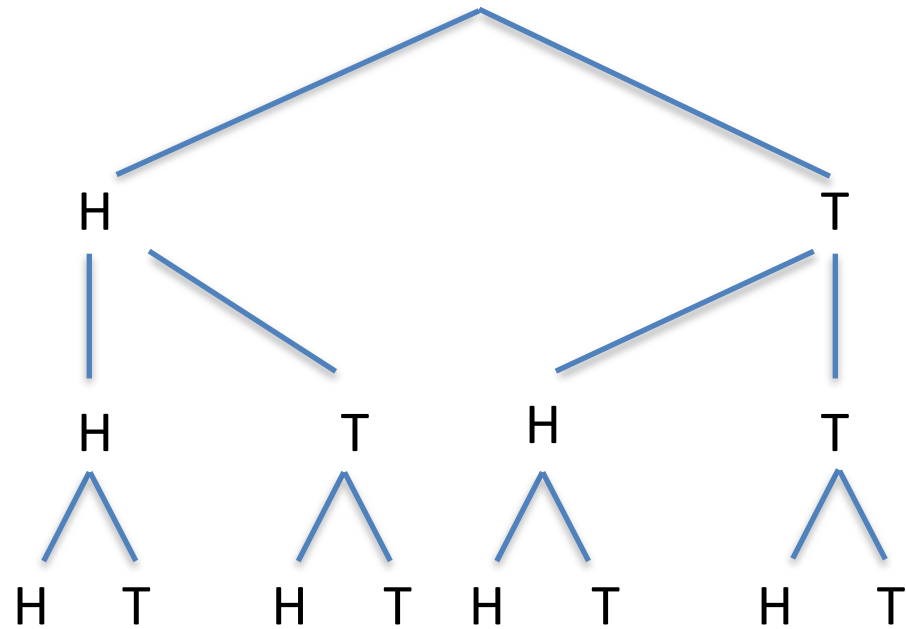
Write your answer as a fraction, as a decimal, and as a percent.

Expand the probability tree to reflect a coin tossed 4 times.

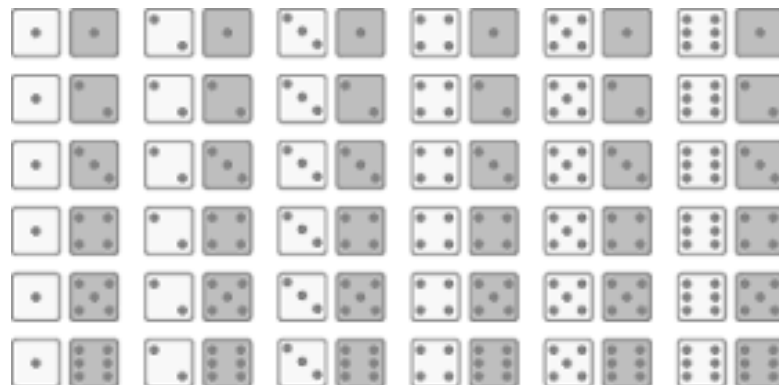
What is the probability Bobbi gets exactly two heads now?

Write your answer as a fraction, as a decimal, and as a percent.

Challenge - predict the number of possible outcomes for 5 coin tosses!

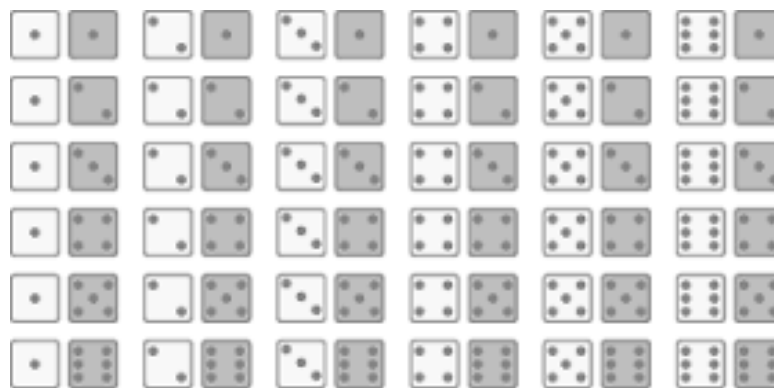


Corrine is playing a board game. To find the number of spaces to move, she rolls a pair of dice. On her next roll she wants doubles or a sum of 10. What is the probability that she rolls doubles or a sum of 10 on her next roll? Interpret your answer in terms of a uniform probability model.



$$P(\text{ ___ U ___ }) = \underline{\hspace{2cm}}$$

Corrine is playing a board game. To find the number of spaces to move, she rolls a pair of dice. On her next roll she wants doubles or a **sum greater than 6**. What is the probability that she rolls doubles or a **sum greater than 6** on her next roll? Interpret your answer in terms of a uniform probability model.



$$P(\text{ ___ U ___ }) = \underline{\hspace{2cm}}$$

Hamsters at the *Spinning Wheel Advanced Hamster Academy* receive an achievement award for either performing community service or making the honor roll. The school has 500 Hamsters and 180 of them received the award. There were 125 Hamster who performed community service and 75 Hamsters who made the honor roll. What is the probability that a randomly chosen student at *Spinning Wheel Advanced Hamster Academy* performed community service and made the honor roll?

Write the below in your words

$$P(A \cup B) = P(A) + P(B) - P(A \cap B)$$

For the Scenario to the left, what could Event A and Event B, be?

Event A:

Event B:

Use the above to answer the question in the scenario.

THE END



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