

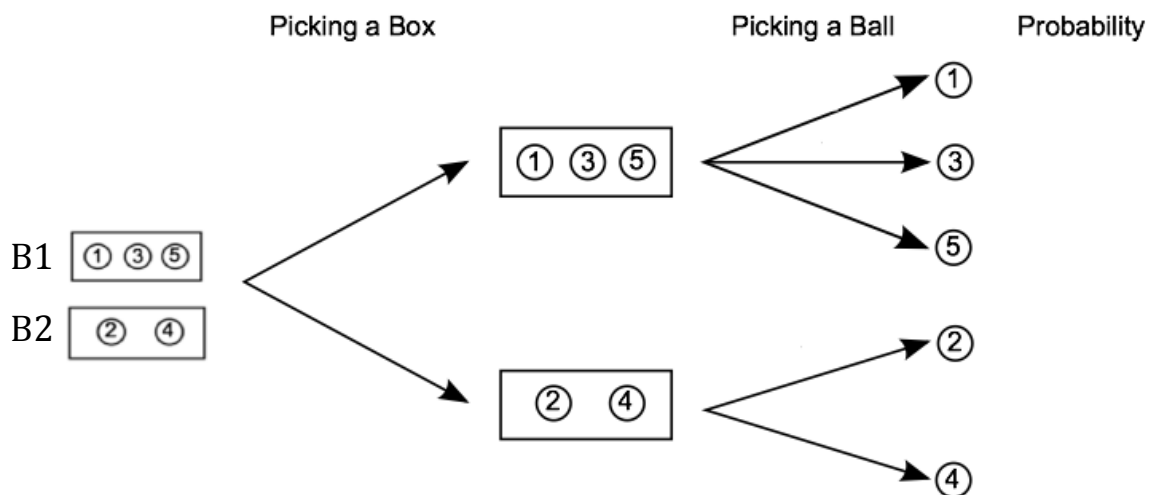
Conditional Probability for **dependent** events

Formula for conditional probability:

$$P(\text{B} | \text{A}) = \frac{P(\text{A and B})}{P(\text{A})} \quad \text{"Probability of B given A"}$$

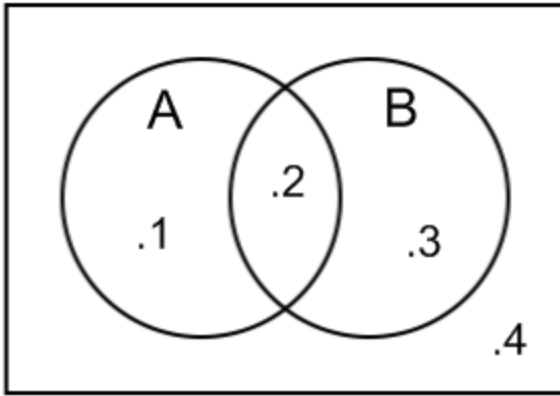
Write the formula for the "Probability of A given B".

You are given two boxes with balls numbered 1-5. One contains balls 1,2,3 and the other contains 2,4. You first pick a box at random, and then you select a ball at random. What is the probability of picking a 2?



$$P(3|B1)=$$

$$P(2|B2)=$$



$$P(B | A) =$$

$$P(A | B) =$$

What is the probability that the sum of two die will be greater than 8, given that the first die is 6?



Events A and B are independent if and only if they satisfy

$$P(B | A) = P(B) \quad \text{or} \quad P(A | B) = P(A)$$

6) A coin is tossed and a single 6-sided die is rolled. Find the probability of landing on the head side of the coin and rolling a 3 on the die.



Are the two events independent or dependent? How do you know?