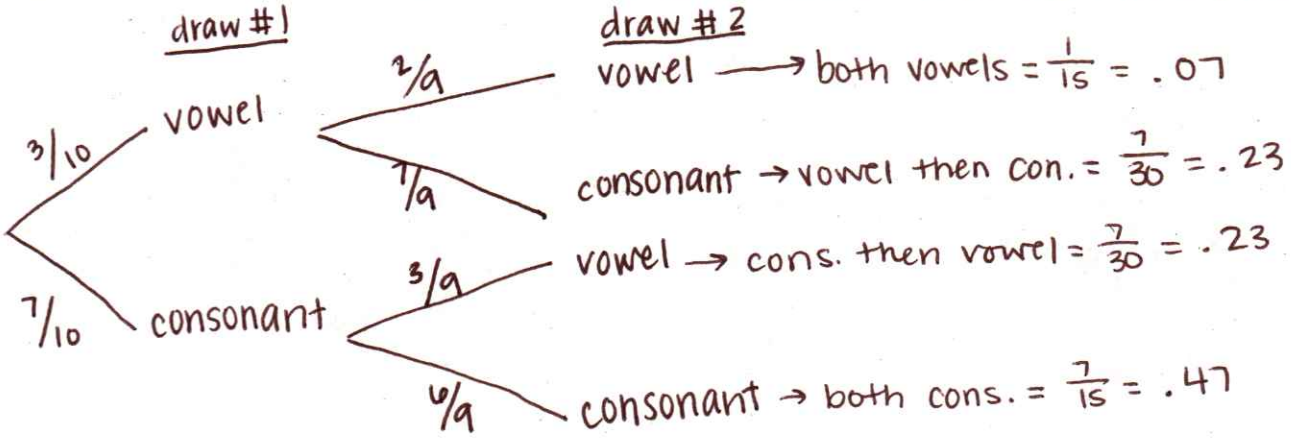
The probability that events A and B both occur can be found using the **general multiplication rule.**

The General Multiplication Rule

$$P(A \text{ and } B) = P(A) * P(B|A)$$

A bag contains 10 counters with the letters of the word STATISTICS written on them. A counter is chosen at random and not replaced before choosing another one (two total counters are drawn). Create a tree diagram to list all the possible outcomes based on whether we draw a vowel or a consonant. 10 letters total 3 vowels, 7 consonants



What is the probability of getting two consonants?

.47

What is the probability of getting a vowel once?

vowel then cons .23 + .23
or cons then vowel

.46

What is the probability of getting a vowel at least once?

vowel once = .23 + .23
vowel twice = +.07

= .53

What is the probability of getting a consonant on the second draw?

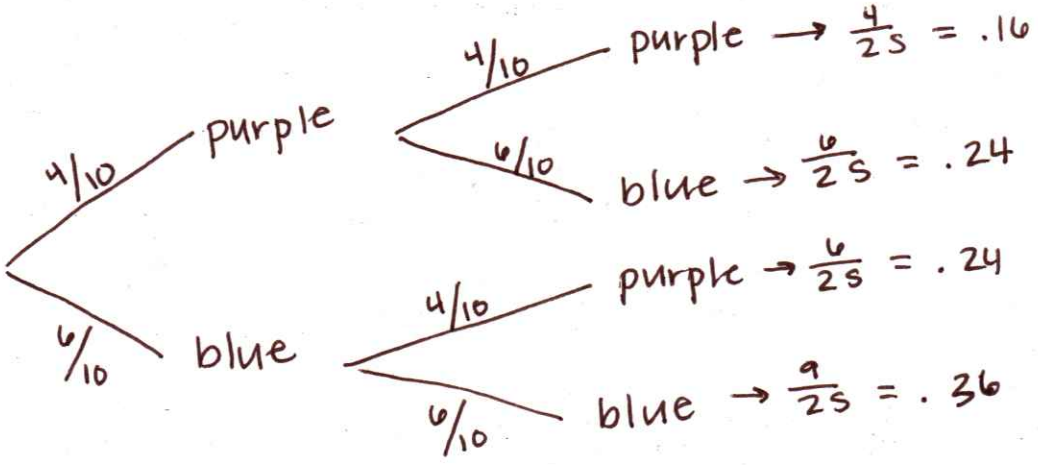
vowel then cons.
or cons. then cons. .23 + .47

= .7

What is the probability of getting two vowels?

.07

A bag contains 4 purple sweets and 6 blue sweets. A sweet is chosen at random and is replaced before choosing another one (two sweets total are drawn). Complete a tree diagram to represent the possible outcomes of drawing two sweets.



What is the probability of drawing two purple sweets?

.16

What is the probability of drawing sweets that are the same color?

.52

What is the probability of drawing sweets that are different colors?

.48

What is the probability that the first sweet you draw is blue?

.6